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never judge a book by its cover



A wise man once said, 'When you assume, you make an ass out of you and me.' At least I think it was a wise man. It could well have been Samuel L Jackson. But I digress. The fact is, making an initial assumption about something, based solely on your first impression, can quite often lead you to come to the wrong conclusions. This is a scenario that is commonplace in the world of modified cars, as everyone seems to have an opinion on everything, and most of the time they are basing their opinions on nothing more than a first glance. Take our cover car, for instance. Many may look upon US-based tuning fan Roger Ochoa's wide-arched Subaru WRX STi and feel that its pink pigment has more than a faint whiff of femininity about it. But the truth is, it's not even pink...not really. The colour is called Rubystone Red and is a classic colour originally found gracing limited edition Porsches. The fact that, combined with the audacious bodykit, it screams for attention and courts controversy only aids in its task of being a show car, which is primarily focused on promoting the parts and companies involved in its build. If it were a sombre grey with narrow arches, who would give it a second look? Even if it does pack almost 700bhp under its vented bonnet. But then style is always subjective.

The other assumption that is commonly made of modified cars is that a standard looking car will be packing standard power which, after reading about the MR2 turbo on page 36, you will realise can be a big mistake. Under the stock looking body is an 800bhp-capable engine that can leave even the most exotic of supercars chewing on its dust.

But possibly the most concerning aspect of when we assume comes from when we buy parts that we only assume to be genuine, or assume that a copy-cat part will be as reliable or as safe as the genuine article. Now, while some 'copies' may simply take inspiration from others' designs, some are essentially trying to fool you into buying an inferior product, usually via the lure of a cheaper price. This can not only have drastic consequences for your car, but possibly your life. On page 73 we check out the risks and assess the potential pitfalls of these parts to give you the facts about falling for the fakes. Enjoy!

DAN SHERWOOD



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42



50



36



FEATURES

18 PINKY AND THE BRAIN ON THE COVER

When you want to stand out, what better than a pink, wide-arch 700bhp Subaru?

27 JAPSHOW 2015

The Far East's finest flocked to Santa Pod for the 2015 Japshow event

32 MODIFIED NATIONALS 2015

Peterborough Showground plays host to a weekend of modified mayhem

36 MIDSHIP MISSILE

This unassuming-looking Toyota MR2 is an 800bhp sleeper in disguise

42 PULSE RACER

450bhp Nissan Pulsar packs enough performance to get anyone's blood pumping

50 LOVE TRIANGLE

Immaculate track-tuned RX-7 with RE-Amemiya rear and a screaming 560bhp Wankel

58 NO COMPROMISE ON THE COVER

500bhp turbo'd Honda Integra DC5 is the complete package

66 BRIDE AND VROOM

Serial tuner can't resist the lure of wide-arching his wife's Mitsubishi Evo X

73 GAME OF CLONES ON THE COVER

Revealed! The dangerous copy-cat parts that are costing you money...or are they?

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12



REGULARS

12 NEWS

Roger Clark Motorsport's Gobstopper II is King of the hill at Goodwood Festival of Speed, Drifters get their chance to shine at FOS, Terry Grant sets new two-wheeled record, What's on this month, Action Cluth Mimms Honda trackday and Japanese Auto Extravaganza show previews, 5mins with... Mark Aigin of Lateral Performance, Win a brand new Civic Type R!

81 JAPSTUFF

New Toyo track tyres, Studio448 apparel, Ultra Racing EP3 Civic strut brace, Rota Recce 17in wheel, Foliatec caliper paint, Turbo Dynamics BorgWarner turbos, Raceglaze Hybrid Blue wax, ITG Maxogen induction kit for EP3 Civic, Litchfield R35 GT-R front differential, Cobra Sport exhaust for Civic FN2

86 THE GARAGE

A new project with a red 'H' enters the Garage and has its health checked to ensure the VTEC still kicks in, yo! – can you guess what it is yet? Project White Stuff sees the light with its Lazer Lamps driving lights, Project Lexus gets a new rim job and Project WRX has a transmission revamp



86



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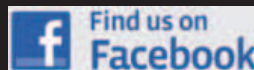
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PHOTOS BY AARON VICKERS PHOTOGRAPHY

GOBSTOPPER IS TOP GUN AT GOODWOOD

SNAPPIN' NECKS AND MAKING NEW FRIENDS, OLLY CLARK WON THE PRESTIGIOUS GOODWOOD FOS HILLCLIMB SHOOTOUT IN THE SCORCHING ROGER CLARK MOTORSPORT GOBSTOPPER II IMPREZA

It was a surprise to most of us tuning enthusiasts to see Roger Clark Motorsport and Gobstopper II make an appearance at the recent Goodwood Festival of Speed. Following an invite from the organisers, Olly Clark and Gobstopper II entered and eventually won the prestigious Festival of Speed hill-climb. A competition for specially-selected cars that have motorsport significance and raw speed.

The entry-list included drivers from the world of tin-tops, endurance racing, rallycross, hill-climbing and single-seaters.

The closest competition came, perhaps unsurprisingly, from a couple of cars designed purely to attack the Pikes Peak hill-climb. These were the bonkers Toyota Celica of the legendary New Zealander Rod Millen, and the incredibly quick Mitjet Mini piloted by Frenchman Jean-Philippe Dayraut.

Olly was surprised to find himself fastest up the 1.87km course

after the end of the first day's practice, especially as the car was far from 'flat-out' at the time, being gradually turned-up over the course of the event. Olly went on to trade fastest times with Dayraut before the final shootout on the Sunday afternoon.

Behind the scenes the RCM team were carefully tweaking the car. Olly's brother Matt is the principle genius behind GSII, which Olly drove to the 2014 Time Attack Pro Extreme title. Olly admits GSII is far more friendly to him than the more aggressive classic-shaped original Gobstopper, which has seen action in the Pace Ward 22B/MLR Sprint Series this year.

Also amongst the team at Goodwood was ECU guru and data analyst Paul Blamire, who helped extract every bit of performance from the show-stopping Subaru.

When it came to the final run, Olly set off with only Dayraut to





RESULTS – TOP 10

OLLY CLARK	SUBARU IMPREZA RCM GOBSTOPPER II	44.91
JEAN-PHILIPPE DAYRAUT	MITJET MINI PIKES PEAK	45.51
ROD MILLEN	TOYOTA CELICA PIKES PEAK	45.88
JEREMY SMITH	MARCH-COSWORTH 2-4-0	47.05
MICHAEL LYONS	HESKETH-COSWORTH 308E	47.17
JAMES LITTLEJOHN	LEC-COSWORTH CRP1	47.19
OLIVER HANCOCK	LEC-COSWORTH CRP1	47.26
ALEX BUNCOMBE	NISSAN GT-R NISMO GT3	47.37
JAMES COTTINGHAM	DALLARA SP1 LMP	47.72
ENDA GARVEY	PEUGEOT 405 T16 GR PIKES PEAK	49.27

follow him. Olly put in a great run, really attacking the top of the course in particular, trimming the hedges with GSII's massive rear wing. Then Dayraut launched. The Mitjet Mini is a serious bit of kit, designed and built purely to take the overall record at Pikes Peak.

In the early stages Dayraut was ahead by a couple of tenths. However, as the run continued, he lost time to Olly and by the end was six tenths behind Olly and GSII.

The result makes a huge statement for Roger Clark Motorsport and the tuning industry as a whole. The speed and reliability of a top-end Time Attack 'tuner car' surprised pundits all over the world, not least former F1 driver Jonny Herbert, who commented how impressed he was during the live broadcast.

Well done to everyone involved and particularly to Olly, for going out there and performing under pressure!



DRIFTERS SMOKE THE HILL

This year a collection of drifters and gymkhana drivers came and made Goodwood their playground. Team Falken driver James Deane was amongst the representatives of Drift Allstars, with DA boss Niall Gunn even taking to the mic during the official TV coverage. Joining in the fun was Monster Energy athlete and gymkhana superstar Ken Block in his crazy 'Hoonicorn' Mustang, Buttsy Butler in a Toyota Soarer and Mad Mike Whiddet in 'Madbul', his 20B triple-rotor FD3S Mazda RX-7.



NEW TWO-WHEEL RECORD

Four years after his original record, stunt driver Terry Grant has broken his own record for climbing the Goodwood Festival of Speed hill on two wheels! Driving a Nissan Juke RS, the man that wowed crowds at tuning shows for years covered the track in just 2m 10s. That's 45 seconds faster than his previous best! Terry had a total of six attempts at the record over the weekend but set his fastest time on his very first attempt. His previous best of 2m 55s was set in a non-RS Juke back in 2011.

So that's categoric proof that if you're thinking about buying a Juke and spend a lot of your time on two wheels, the RS version is the faster car. Point the QR reader on your phone or tablet here to watch footage of Terry's record-breaking climb.



YOKOHAMA SPONSOR CHELSEA FC

Football and cars rarely mix, to be honest. At least, that's what we thought. It turns out that Japanese tyre manufacturer Yokohama has agreed a massive £40m-a-year shirt sponsorship deal with Premier League Champions Chelsea. It's the second-largest shirt sponsorship in English football history, and the latest in a string of deals involving cars and football. Nissan are currently official sponsors of the Champions League and will be until the conclusion of the 2017-18 season. While the only shirt sponsorship bigger than Yokohama's is that of Chevrolet and Manchester United. The Yokohama deal will run for at least five years. Time will tell if it means blokes down the pub start discussing tyre compounds as well as the offside rule, but anything that spreads the name of the high-performance tyre brand has got to be a good thing.



EVENT PREVIEW

**THURSDAY 10TH SEPTEMBER UNTIL
SUNDAY 13TH SEPTEMBER
JAPANESE AUTO EXTRAVAGANZA
NEWARK SHOWGROUND
WWW.JAPCARCLUB.ORG**

This year the Japanese Auto Extravaganza has a new, larger venue. Newark Showground is the venue for the four-day weekender that combines cars with fun activities. Aimed specifically at car clubs, JAE has loads going on, from football matches to It's A Knockout madness. There's also a car pull, Japanese eating challenges and team relay races. Of course there's car stuff going on, too, with large displays from car clubs around the UK and beyond, precision driving displays and stunt rides. And for the first time at JAE, this year there's even drift taxis and drift lessons from Learn 2 Drift! JAE's unique setup means this is the show to head to if you want a weekend to catch up and have a laugh with the people you usually only chat to on the forums. Head to the website to book your tickets!



**SUNDAY 23RD AUGUST
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DATES FOR YOUR DIARY

WHAT, WHERE AND WHEN...

AUGUST

15TH - RUN WHAT YA BRUNG, SANTA POD, WWW.RWYB.COM
15TH - MLR SPRINT SERIES RD.5, BLYTON PARK, WWW.LANCERREGISTER.COM
16TH - TRACKDAY, BLYTON PARK, WWW.JAVELINTRACKDAYS.CO.UK
16TH - TOYOTA SPRINT SERIES RD.4, CROFT, WWW.TOYOTASPRINT.COM
18TH - TRACKDAY, OULTON PARK, WWW.JAVELINTRACKDAYS.CO.UK
19TH - TRACKDAY, ANGLESEY GP & COASTAL, WWW.JAVELINTRACKDAYS.CO.UK
19TH - TRACKDAY, BRANDS HATCH INDY, WWW.MSVTRACKDAYS.COM
19TH - SUMMER WEDNESDAYS TRACK EVENING, SNETTERTON 300, WWW.MSVTRACKDAYS.COM
19TH - TRACKDAY, BEDFORD AUTODROME GT, WWW.OPENTRACK.CO.UK
21ST - TRACK EVENING, DONINGTON PARK, WWW.JAVELINTRACKDAYS.CO.UK
21ST - DRIFTING, OULTON PARK, WWW.MSVTRACKDAYS.COM
22ND - PETROL & PISTONS SHOW (RD.5 TIME ATTACK), CROFT, WWW.PETROLANDPISTONS.CO.UK
22ND - TRACKDAY, BEDFORD AUTODROME GT,

WWW.MSVTRACKDAYS.COM
22ND - TRACKDAY, ELVINGTON, WWW.JAVELINTRACKDAYS.CO.UK
22ND-23RD - BRITISH DRIFT CHAMPIONSHIP RD.4, LYDDEN HILL, WWW.THEBRITISHDRIFTCHAMPIONSHIRCO.UK
22ND-23RD - KING OF EUROPE PRO SERIES RD.5, HUNGARY, WWW.KINGOFEUROPE.NET
23RD - EHM PARTS/ACTION CLUTCH MIMMS HONDA TRACKDAY, ROCKINGHAM, WWW.MIMMSHONDADAY.COM
23RD - PEAK PERFORMANCE TEST & TUNE DAY, SANTA POD, WWW.RWYB.COM

23RD - TRACKDAY, CROFT, WWW.JAVELINTRACKDAYS.CO.UK
24TH - TRACKDAY, CASTLE COMBE, WWW.JAVELINTRACKDAYS.CO.UK
24TH - TRACKDAY, CADWELL PARK, WWW.JAVELINTRACKDAYS.CO.UK
25TH - TRACK EVENING, SNETTERTON 300, WWW.JAVELINTRACKDAYS.CO.UK
25TH - TRACK EVENING, BRANDS HATCH INDY, WWW.OPENTRACK.CO.UK
26TH - JUNIOR DRAG RACING FUN DAY, SANTA POD, WWW.SANTAPOD.CO.UK

27TH - TRACKDAY, BRANDS HATCH GP, WWW.MSVTRACKDAYS.COM
27TH - ROAD CAR ONLY TRACKDAY, OULTON PARK, WWW.MSVTRACKDAYS.COM
28TH - TRACKDAY, CROFT, WWW.JAVELINTRACKDAYS.CO.UK
29TH-30TH - KING OF TOUGE, HUNGARY, WWW.KINGOFEUROPE.NET
29TH-31ST - 10TH ANNUAL MSA/ACU APIRA OPEN SPORT NATIONALS, SHAKESPEARE COUNTY RACEWAY, WWW.SHAKESPEARECOUNTRYRACEWAY.COM
30TH - JAVELIN SPRINTDAYS EVENT, CADWELL PARK, WWW.JAVELINTRACKDAYS.CO.UK
31ST - BANK HOLIDAY TRACKDAY, DONINGTON PARK GP, WWW.JAVELINTRACKDAYS.CO.UK

SEPTEMBER
1ST - TRACKDAY, OULTON PARK, WWW.JAVELINTRACKDAYS.CO.UK
1ST - TRACKDAY, SNETTERTON 300, WWW.OPENTRACK.CO.UK
2ND - PRO PEAK PERFORMANCE TEST & TUNE DAY, SANTA POD, WWW.SANTAPOD.CO.UK
2ND - TRACKDAY, BRANDS HATCH INDY, WWW.MSVTRACKDAYS.COM
2ND - SESSIONS AND TASTER

EVENING, BRANDS HATCH INDY, WWW.MSVTRACKDAYS.COM
3RD - TRACKDAY, CADWELL PARK, WWW.JAVELINTRACKDAYS.CO.UK
3RD-6TH - FIA/FIM EUROPEAN CHAMPIONSHIP FINALS
4TH - TRACKDAY, ANGLESEY GP & COASTAL, WWW.JAVELINTRACKDAYS.CO.UK
4TH - TRACKDAY, CROFT, WWW.JAVELINTRACKDAYS.CO.UK
5TH - TRACKDAY, CROFT, WWW.JAVELINTRACKDAYS.CO.UK
5TH - TRACKDAY, BLYTON PARK, WWW.JAVELINTRACKDAYS.CO.UK
8TH - BURTON POWER TRACKDAY AND TRACK EVENING, SNETTERTON 300, WWW.MSVTRACKDAYS.COM
8TH - TRACK EVENING, BRANDS HATCH INDY, WWW.OPENTRACK.CO.UK
10TH-13TH - JAPANESE AUTO EXTRAVAGANZA, NEWARK SHOWGROUND, WWW.JAPCARCLUB.ORG
11TH-13TH - 27TH ANNUAL NSRA HOT ROD DRAGS, SHAKESPEARE COUNTY RACEWAY, WWW.SHAKESPEARECOUNTRYRACEWAY.COM
12TH - MLR SPRINT SERIES RD.6, LOTUS TEST TRACK AT HETHEL, WWW.LANCERREGISTER.COM

HOMEBUILT HONDA BREAKS LAP RECORD

Neil Wrenn works in a bank by day but on weekends you can find him behind the wheel of his DIY turbocharged B-series Honda Civic. At the latest round of the 2015 UK Time Attack Championship Neil smashed the Club FWD lap record, setting a 1:35.847 lap around Oulton Park Island on road-legal rubber. He had to fight off stiff competition to grab the record, especially as this is the biggest and arguably toughest class in Time Attack this year. At the very top of the time sheets, Gareth Lloyd bagged himself a new Pro Extreme and outright Time Attack lap record at the same event, with a staggering 1:21.004 on slick tyres. Both extremely impressive feats. There were also inaugural lap records for Ollie Novell in his Clubman Corolla T-Sport (1:46.585) and Jonny Roose in his Clubman+ Evo VIII (1:35.505). With rain coming down in the final session of the day, all of these drivers might have gone even faster had the track remained dry. Photos by Flat Out Photography



WIN A CIVIC TYPE-R!

To celebrate the launch of the new Civic Type-R, Honda is running a competition where you can win one for yourself. Back in May 2014 the new CTR smashed the production FWD lap record at the old 'Ring, with an impressive 7min 50s lap. All you have to do is set the fastest time around the Nürburgring Nordschleife in a CTR in Honda's own simulator, which is travelling the country. To find out where and when, visit www.kingofthehell.com. The competition has already begun and ends on 1st November. Good luck!



5 MINUTES WITH... MARK AIGIN

Q. HI, WHO ARE YOU AND WHAT DO YOU DO?

A. HELLO. MY NAME IS MARK AIGIN, I AM THE OWNER OF SUBARU SPECIALIST LATERAL PERFORMANCE

Q. WHAT PRODUCTS DOES LATERAL PERFORMANCE PRODUCE?

A. WE CONCENTRATE ON MAKING SUBARUS GO FASTER, WE'RE NOT INTERESTED IN MAKING THEM LOOK PRETTIER. SO WE OFFER ALL KINDS OF UPGRADES FOR THE ENGINE, TURBO, FUEL SYSTEM, ENGINE MANAGEMENT AND ALSO DRIVETRAIN UPGRADES

Q. HOW DID LATERAL PERFORMANCE BEGIN?

A. I BOUGHT MY FIRST SUBARU BACK IN 1998. IT WAS AN IMPORTED STI VERSION IV. I BEGAN DOING LOTS OF TRACKDAYS IN IT AND WANTED TO IMPROVE THE CAR'S PERFORMANCE AND HANDLING BUT I WASN'T VERY IMPRESSED WITH THE LIMITED RANGE OF TUNING PARTS AVAILABLE AT THE TIME. I STARTED MESSING AROUND WITH GADGETS THAT ADJUSTED FUEL SUPPLY TO THE ENGINE, AFR METERS TO MONITOR THE CHANGES, PLAYED WITH EXHAUST PARTS, AND WORKED WITH A TURBO MANUFACTURER TO CREATE A HYBRID TURBO. THE CAR BECAME MUCH FASTER AND FELLOW SUBARU ENTHUSIASTS STARTED APPROACHING ME AT TRACKDAYS, ASKING WHAT I HAD DONE TO THE CAR. THE QUESTIONS TURNED TO REQUESTS AND THE BUSINESS GREW FROM THERE

Q. WHERE DID THE NAME LATERAL PERFORMANCE COME FROM?

A. THE NAME WAS SUGGESTED BY MY FRIEND, ADAM. WELL, TECHNICALLY HE SUGGESTED 'LATERAL TUNING' - I LIKED THE LATERAL PART, BUT CHANGED TUNING TO PERFORMANCE, BECAUSE IT JUST FELT A BETTER FIT TO ME

Q. WHAT ARE YOUR MOST POPULAR PRODUCTS?

A. DEFINITELY OUR MDX321 BILLET TURBO RANGE. THESE OFFER A BIG INCREASE IN PERFORMANCE WITH ALL THE EASE OF A BOLT-ON APPLICATION. OUR ENGINE INTERNALS ARE ALSO VERY POPULAR. MANY HIGH-PROFILE CARS RUN LATERAL PERFORMANCE PARTS INCLUDING THE SD MOTORSPORT WAGON AND ANDY FORREST'S SIX-CYLINDER SUBARU IMPREZA

Q. YOU HAVE A DEMO CAR CALLED 'THE BANANA'

A. THATS RIGHT, WE HAVE A BRIGHT YELLOW SUBARU IMPREZA THAT GOT APPROPRIATELY NICKNAMED! WE ENTER IT INTO VARIOUS EVENTS TO PROVE OUR PRODUCTS WORK, AND HAVE FUN AT THE SAME TIME. THE CAR HOLDS CLASS RECORDS AT HAREWOOD HILL-CLIMB. AT RAF MARHAM, IT RECORDED 208MPH, DOING 0-200MPH IN 757 METRES, AND HAS DONE AN 8.95 @ 168MPH AT ELVINGTON. MY FRIEND STEVEN DARLEY OF SD MOTORSPORT DOES A LOT OF PREP ON THE CHASSIS AND ALSO DRIVES THE CAR. WE ENTERED A ROUND OF TIME ATTACK AT BRANDS HATCH LAST YEAR AND THE BANANA SET THE FASTEST TIME IN A VERY COMPETITIVE PRO CLASS, BEATING A LOT OF THE PRO EXTREME CARS AT THE SAME TIME

Q. WHAT ARE YOU CURRENTLY WORKING ON?

A. WE ARE VERY EXCITED ABOUT OUR NEW RANGE OF TURBOS. OUR MDX321 BILLET BOLT-ON TURBOS ARE WELL-KNOWN BUT THEY WILL NOW COME WITH A STEEL RACE BEARING CARRIER AND CERAMIC BALL-BEARINGS, AT NO EXTRA COST! THIS MEANS INCREASED PERFORMANCE WITH MUCH GREATER RELIABILITY. IT IS TECHNOLOGY WE ARE BRINGING THROUGH FROM OUR RACE TURBOS, AND WE'VE MANAGED TO SECURE A DEAL TO OFFER THEM AT THE EXISTING PRICES, PASSING THE SAVINGS STRAIGHT TO OUR CUSTOMERS

Q. THATS AMAZING! WHAT ELSE DOES THE FUTURE HOLD FOR LATERAL PERFORMANCE?

A. WE'VE BEEN CONCENTRATING ON THE NEW TURBOS, BUT WE ARE ALWAYS WORKING ON THINGS. WE BELIEVE OUR 'BANANA' AND OUR CUSTOMERS CARS PROVE OUR PARTS ARE AT THE TOP MAINTAINING THAT POSITION MEANS WE ALWAYS HAVE TO PUSH ON, CONSTANTLY LOOKING FOR NEW OPPORTUNITIES. SO WHILE WE CANT GIVE TOO MUCH AWAY, YOU CAN BE ASSURED WE ARE WORKING BEHIND THE SCENES TO PROVIDE THE MOST COST-EFFECTIVE PERFORMANCE UPGRADES, WITH A FOCUS ON QUALITY AND RELIABILITY

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PINKY AND THE BRAIN

AEROSPACE ENGINEER
ROGER OCHOA IS
CERTAINLY NO
SHRINKING VIOLET.
THIS STAGGERINGLY
WIDE IMPREZA HAS
GOT HIM TICKLED PINK...

WORDS: DANIEL BEVIS
PICS: VIKTOR BENYI



Subtlety is an art that can take some time to perfect. It's often said that a violin concerto will be enhanced by the notes that aren't being played rather than those that are, the subtle nuances of minimalism, of paring things back, speaking louder than an excitable riot of excess ever could. The principles of Minimalist art echo the same; taking the reductive principles of Modernism and distilling them down to that which is fundamentally essential in unembellished form. Similarly, Minimalist architecture employs little more than white light, broad surfaces, an absence of clutter, and a Zen attitude. What

is more important is what is not there.

Subtlety, however, is not for everyone. Some people are shoutier than others, and it's fair to say that their efforts will get noticed way before those of the wallflowers. While some modifiers will obsess over which shade of gunmetal to finish their wheel centres in, or what pattern of stitching should adorn their gear gaiter, folk like Roger Ochoa – owner of this unmissable Subaru – get stuck in hammer-and-tongs with making the car cartoonishly wide, exaggerating things to the nth degree, then slathering the whole thing in hot pink. Or as it is officially called: Porsche

Rubystone Red. Because why the hell not, eh? It's not that one approach is better than the other, they're just different, and you certainly can't argue with the results.

What Roger's achieved here is to take a well-known and established silhouette and effectively turn it into a sort of life-size Hot Wheels racer, all caricaturistic proportions and deliberately jarring juxtapositions. And while he doesn't cite the movie specifically at any point, we're betting that *The Fast and the Furious* is to blame to a point.

'I got into the car scene in 2009, when I got my first Mitsubishi Eclipse,' he explains.





See? Brian O'Conner's lurid green Eclipse set hearts afire with its raspy exhaust note and mysterious ability to randomly blow out floor panels at high speed ('Danger to manifold!'), and the trickle-down effect of that iconic Mitsi surely informed something deep in Roger's subconscious. 'I had an uncle that used to collect replica model tuner cars, and after seeing them I fell in love with them,' he continues. 'My first car was a 2001 Eclipse that I worked on in high school. I didn't have the funds to really modify it too much though, and all I was able to do was wheels, springs and intake.' Not a bad start for a schoolkid though, right? I don't know about you, but when I was 17, I was driving to school in a Nova that cost me £200. A lowered Eclipse sounds pretty damn good.

Fate and fortune certainly smiled on Roger after graduating, as the trajectory of

'TAKING YOUR OWN PATH CAN OFTEN SEE YOU BLAZING A TRAIL'



IT'S NOT REALLY PINK IS IT? LOOKING AT ROGER'S SUBARU WRX STI IT'D BE VERY HARD TO AVOID THE FACT THAT IT IS, IN ESSENCE, VERY PINK... EXCEPT IT'S NOT ACTUALLY PINK AT ALL. OR AT LEAST NOT IF YOU GO BY THE NAME OF THE COLOUR. RATHER THAN BE SOME BARNIE INSPIRED RUC CONCEPT AFTER A NIGHT ON THE MALLS COCKTAILS, ROGER'S CAR IS IN FACT COATED IN RUBYSTONE RED, A VERY RARE OEM PORSCHE COLOUR. IT WAS INTRODUCED FOR THE 964 RS MODEL YEAR IN 1991. IT WAS REFERRED TO AS ONE OF THE 'LIPSTICK COLOURS' OF THE TIME, ALONG WITH THE OTHER STAND OUT COLOUR, MINT GREEN - SO KNOW YOU KNOW

his career path now sees him working as a mechanical engineer at an aerospace company at the age of 22, designing exhausts and ducts for airplanes. This has afforded him a little freedom to spread his modifying wings, as it were, and although an E36 BMW M3 followed the Eclipse, it was 2013 that saw him buying his first brand new car. 'The Impreza STI was a birthday present to myself,' he grins. 'But never in my mind did I plan on taking it to this level. I told my mom I'd only do the lug nuts and the intake, but as you can see, I went a little past that!'

Yes, it's safe to say that he did. Quite a long way, in fact. Perhaps the pressures of working in the aerospace industry, with the close scrutiny on perfection and the infinitesimal margin for error in his day-to-day work, requires some sort of boisterous outlet. It'd certainly explain the pinkness.

'Well, after I knew I was going to start modding it, I went for a clean look,' he recalls, luxuriating into the tale. 'It started with just a lip kit, wheels and lowering the thing. That was pretty much it. But then I started to crave something more... I've always loved track GT wings, so I decided to go for one of those; when I did it, you really didn't see too many track wings on daily-driven cars, and people would always be calling them 'ricers'. I got a lot of hate for it in the beginning, but later on every car started getting GT wings...' You see, taking your own path can often see you blazing a trail. And that wasn't the end of it, of course, not by a long chalk...

'I went full force with that look at that point, and went for the carbon-fibre bonnet, racing seats and harnesses, and the rollcage. When I saw the wide-body flare trend starting to pop up, I decided I wanted a piece of that, too! I wanted my kit and

car to be completely different and to pop out, so that's where we came up with the idea for the bodywork and went for it completely.' Working with Vollkommen Design and their wide-body addenda, Roger roped in the expertise of LT Motorwerks, helping to design custom touches to make the Impreza unique.

And then a watershed moment came – a line in the sand for Roger's go-big-or-go-home mentality: SEMA. The world's biggest, brightest and often brashest aftermarket tuner show was calling to Roger from across the Nevada sand. And who could resist such a call?

'SEMA came out of nowhere,' he recalls, clearly still blown away by the rapidity of how it all developed. 'I was planning on going with Toyo anyway, before all this happened, although I was on the waiting list. Around three months before SEMA they gave me the boot, saying that

WHAT IS SEMA?

THE FIRST SEMA SHOW TOOK PLACE IN 1967, IN THE BASEMENT OF THE DODGER STADIUM IN LOS ANGELES, AND IT'S BEEN GROWING IN STATURE EVER SINCE. TODAY, IF YOU'RE NOT AT SEMA, YOU'RE NOT PLAYING THE GAME. THE ACRONYM STANDS FOR SPECIALTY EQUIPMENT MARKET ASSOCIATION, AN ORGANISATION THAT WAS FORMED BACK IN 1963 BY SUCH HALLOWED LUMINARIES AS DEAN MOON (OF MOONEYES), VIC EDELBROCK JR (OF EDELBROCK, OF COURSE), ROY RICHTER (OF BELL HELMETS AND CRAGAR EQUIPMENT), AND VARIOUS OTHER LEADING LIGHTS OF THE TRADE; IT NOW ENCOMPASSES WELL OVER 6000 COMPANIES IN THE PERFORMANCE AND AFTERMARKET ARENA, OFFERING BUSINESS DEVELOPMENT, MARKET RESEARCH, TRAINING AND DEVELOPMENT, AND ALL SORTS OF STUFF LIKE THAT. THEY ALSO PUT ON ONE HELL OF A SHOW...

unfortunately they didn't have room for me, but I decided to keep going with my build anyway. I started sending teaser photos to the Toyo Tire manager, and he liked what he was seeing – so he put me back in!'

With a bunch of sponsors on





'THE 2.5-LITRE BOXER NOW WEARS A GTX3576R TURBO'

WHO ARE RSV FORGED? RSV FORGED ARE A PROUDLY AMERICAN MANUFACTURER, OFFERING A BROAD RANGE OF AFTERMARKET FORGED WHEELS. THEY'RE ALL ENGINEERED IN-HOUSE FROM INITIAL SKETCHES TO FULL SCALE RENDERING AND CNC MACHINING, AND AS SUCH CAN BE CUSTOM MADE TO ORDER. THE ON-THE-SHELF CATALOGUE CATER FOR ALL ASPECTS OF THE MODERN TUNER SCENE, WHETHER YOU'RE AFTER SOMETHING ULTRA-LIGHT, WEIGHT A LOT OF LOST, IMPROVED STABILITY OR AS YOU SEE ON ROGER'S SUBARU, ENOUGH STEEL THAT YOU COULD SIT A LITTER OF PUPPIES IN THERE.

board, sleeves were rolled up in the workshop as the coffee boiled, the team eager to tear into the STI and create something truly brutal for SEMA

2014. And what emerged a few months later, as the guys stepped blinking into the light through the garage doors, was the bubblegum streetracer you see before you. The very antithesis of subtlety.

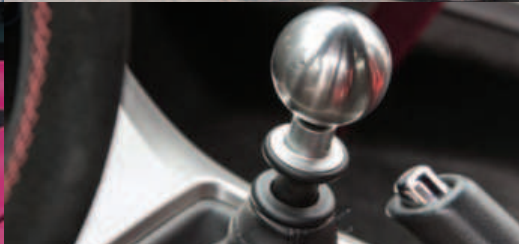
Let's step aside from the outrageous looks for a moment, however, and take a peep under that sculpted carbon-fibre bonnet. It'd be a shame to build on a base as raw and focused as the STI without augmenting the performance somewhat, so that sturdy 2.5-litre boxer now wears a Garrett GTX3576R turbo, front-mount intercooler, custom management and fully blueprinted internals, while the

chassis has been beefed up to suit; Whiteline anti-roll bars are a proven quantity in the sphere of Impreza underpinnings, and the whole thing's suspended by KW V3 coilovers – which probably makes it one of the few static cars at SEMA, rather than running airbags!

That exterior treatment, then – well, it's unique, isn't it? LTMW's work on the Vollkommen Design kit has resulted in something so outrageously wide it could probably be reclassified as a truck. The insane arch extensions just about manage to stretch far enough to cover the bulging girth of the RSV

Forged wheels – they're 12.5in wide! – with the Toyo connection providing some suitably sticky rubber to keep things planted when that vast turbo spools up. And Roger's love of GT wings? That's manifested here by a Liberty Walk item rocking a swan-neck construct; that is, with the support turrets looping over and joining the spoiler blade from the top. #becauseacecar, right?

'Oh yes, I've always been deep in the social media car scene as well,' says Roger. 'I like it – it's easier for me to show a wide range of people the work I have done. I have a lot of great





ENGINE

2.5-litre, 4-cyl, 16v EJ257 boxer engine, Garrett GTX3576R rotated turbo, TiAL 44mm wastegate, custom exhaust, Raceland remote cut-out, custom downpipe and up-pipe, Tomei UEL manifolds, 2000cc Injector Dynamics injectors, Deatchworks hardwired fuel pump, fully blueprinted engine (pistons, rods, valves, springs, cams), ETS 4in front-mount intercooler, Grimspeed electronic boost control solenoid, Cobb AccessPort, CSF radiator, KillerB oil pick-up and baffled sump, 4in intake, Go Fast Bits BOV, Cosworth TGV deletes, HKS turbo timer, Samco radiator and vacuum hoses, 590bhp at the wheels

TRANSMISSION

ACT 6-puck clutch, ACT ultra-light flywheel, PST carbon-fibre propshaft

SUSPENSION

KW Variant 3 coilovers, Whiteline anti-roll bars (24mm front; 22mm rear), Cosco front strut brace

BRAKES

Factory discs with Brembo calipers with custom cursive lettering all round

WHEELS & TYRES

12.5x18in RSV Forged RSF1 wheels with 335/30/18 Toyo R888 tyres, Project Kics Neo Chrome wheel nuts

INTERIOR

Bride Japan Limited Edition Stradia Venus seats, Cipher Auto harnesses, Cosco 6-point rollcage, Defi Racer gauges, Innovative AFR digital gauge, TMW weighted gearknob, STI short shifter, NRG short hub with quick-tilt, Personal Alcantara 330mm steering wheel

EXTERIOR

Vollkommen Design wide-body, Aero Flow Dynamics splitter, diffuser, side extensions and carbon-fibre fender grilles, Liberty Walk GT-R swan spoiler, JCM window visors, carbon-fibre short antenna, custom headlights, JDM third brakelight, carbon-fibre exhaust cover, Varis carbon-fibre bonnet, vortex generators, Cosco front and rear towhooks, custom painted in Porsche Rubystone Red

THANKS

'My sponsors: AeroFlow Dynamics, Vollkommen Design, LTMW, Toyo Tires, Skyprintmedia, RSV Forged, Floss Design, CSF Radiators, TredWear, GoFastBits, RallySportDirect, 9kracing'



supporters, and it just pushes me to do something better and bigger. So that's what I'm going to do this upcoming SEMA!' Now, we probed him on this issue but he's playing his cards close to his chest... The most we can reveal is that his next build is underway, and will be breaking cover at SEMA 2015. If this luminous jackhammer is anything to go by, it's probably going to be something pretty sensational.


'Luckily I had a lot of positive reactions to my car, especially at car events,' he assures us. 'I do get the Subaru purists, of course, that dislike any Impreza that isn't functional for rally, but overall I've had a lot more love than

hate.' And it's gratifying to know that hanging your balls out there doesn't always result in getting viciously flicked with a wet towel – in Roger's case, he's followed his own agenda, and it turns out that people rather like it. It's an unmissable car, that's for sure, and you've never seen anything quite like it; you may adore it, or you may feel that it's the sort of thing you could never countenance driving yourself. But isn't it great that it exists? That people are out there trying these things?


Subtlety isn't for everyone, naturally, but it takes a lot of people to make a world. As long as you're having fun, there really isn't a lot to worry

BRIDE SEATS

ROGER'S CAR FEATURES BRIDE BUCKET SEATS. WHILE THIS BRAND IS VERY MUCH ON-TREND RIGHT NOW, THEY'VE ACTUALLY BEEN IN BUSINESS SINCE 1981, AND THE ICONIC LOGO YOU SEE ON ANY JDM BUILD WORTH ITS SALT HAS BEEN WITH US SINCE '83. BRIDE WERE THE FIRST JAPANESE AFTERMARKET SEAT MANUFACTURER TO RECEIVE OFFICIAL FIA RECOGNITION; TODAY THEY OFFER 80 DIFFERENT DESIGNS FOR OVER 800 VEHICLES. THEY'RE ALSO THE ULTIMATE SEAT FOR GAINING A RIGHTEOUS AMOUNT OF SCENE POINTS, TOO!

about. Roger's certainly enjoying himself. But how on Earth is he going to top this for SEMA '15? You'll just have to wait there on the edge of your seat, because whatever Roger's insane brain thinks up next, be sure that, like pinky here, it'll blow your mind! 





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JAPSHOW 2015

THE SUN WAS SHINING AND SANTA POD WAS PACKED TO THE GILLS WITH THE FAR EAST'S FINEST, IT MUST BE THE JAPSHOW...

WORD & PICS: DAN SHERWOOD

Maybe it's been because the weather gods have seen fit to smile on many a show this year, or maybe it's just that people are finally feeling confident with their bank balances and more willing to splash the

cash of a weekend, but from our perspective the show scene seems to have had somewhat of a resurgence this year, with each show we attend feeling bigger and better than the last. And that was certainly the case with Santa Pod's

Japshow, which was practically heaving with red hot Japanese rides and the people who love them.

Along with countless car clubs creating a sea of perfectly polished performance as far as the eye could see, the

show 'n' shine arena seemed especially busy with many new cars joining the more regular faces to vie for the chance of coming away with some silverware. Coming out on top on the day was Alan Moss with his immaculate

Subaru WRX STi. Known as much for a huge Scooby Doo which he has hanging out of the window (see pic below) as he is for having a seriously smart air-ride equipped Subaru, the pure level of cleanliness – both inside and out –





combined with some trick mods gave him the judges' vote for Best of Show. The hot Hondas of Nick Brown and Stuart Knight took second and third place respectively, both with super clean

and majorly modified examples, Nick with his Civic Coupe and Stuart with his EP3 Civic. Derrick Burgess also walked away with the Best Retro award for his Datsun 280ZX, while

Nino Parello nicked the Judges' Choice award for his bright green Nissan 370Z.

But for those who prefer 'go' cars to 'show' cars, there was still much to be admired on

a sunny Sunday at Santa Pod Raceway.

For starters there was the live action arena that thrilled the crowds with drift demos and taxi rides, while Terry Grant, Lee Bowers and Michelle

Westby were all on top form burning rubber and dropping jaws with their cunning stunts.

For the more competitive punter there was the chance to watch the amazing car control



WIN 2 TICKETS TO SANTA POD'S JAPSHOW FINALE!



Japanese Performance has hooked up with Santa Pod to offer 10 pairs of tickets to the Japshow Finale on Sunday 11th October. To be in with a chance of bagging two tickets to one of the hottest shows of the year simply answer the following question:

Who is the main sponsor of the FWD Drag Series?

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- C) WHITELINE

Email your answer to jap@chpltd.com with 'Japshow comp' in the title.

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of the Podkhana racers. The proceedings were run by competitor and Gymkhana GRID regular Jake Archer and his team who put on an awesome event with really close racing and

tonnes of fast paced action. Fellow GRID and Podkhana regular Dmitriy Sribnyj was the eventual winner in his Scoobyclinic Racing Subaru Impreza. And finally there was

that small matter of a certain stretch of Tarmac running through the venue that also had a hand in keeping the Japshow crowds entertained. Japshow always brings out the

big guns on the strip and with the Competition Clutch FWD Drag Series and the Millers Oils Jap Drag Series running on the day, along with the usual mix of high-powered Run What Ya

Brung competitors, this year's event was no different. 2013 Champion Kiel Priestman in his Skunk 2 EG Civic was the eventual winner of the FWD Drag Series in a





hard-fought battle that saw some amazing eight-second passes but unfortunately ended up with many of the entrants having to pull out through mechanical problems.

The Jap Drag Series

saw some serious action, too, with David Greenhalgh and Mark Moseley moving up to join Steve Bowen in the Pro Class. But it was new boy to the class David Greenhalgh in his RIPS R34 Skyline who


eventually topped the table and took home the Pro Class trophy. In the Street Class it was Jeff Ludgate that looked on for the win from the qualifying results, but mechanical gremlins struck in the final gifting

the win to Brent Crooks in his R33 Skyline.

So if you didn't make it to the Pod to enjoy all that the Japshow had to offer, then you really did miss out, but luckily there's a second chance for more of the same at

the awesome Japshow Finale on Sunday 11th October.

As the last major Japanese event of the year at the legendary Northamptonshire strip, it's always a blinder!

Miss it, miss out! 





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MODIFIED NATIONALS

PETERBOROUGH SHOWGROUND WAS PACKED OUT WITH A PLETHORA OF PERFORMANCE CARS AS THE MODIFIED NATIONALS WEEKENDER ROLLED INTO TOWN

WORDS & PICS: DAN SHERWOOD

Far from being a regular on the JP show calendar, this year's Modified Nationals show, held at Peterborough Showground, was the first time we had visited the event in almost five years – how time flies when you're having fun!

Due to the fact that Mod Nats (as it is affectionately known) is a multi-marque show, geared up much more towards the show car, rather than 'go' car end

of the tuning spectrum, means that, from a Japanese car fan's perspective, it can sometimes feel a little superfluous to requirements when viewed next to many more hardcore Japanese-only shows – especially the ones based around the action of top-named racing circuits. However, with a free weekend in our calendar we decided to give it a go once again for old-time's sake. And

you know what? We were really glad we did!


Yes, the event's showground venue allows little in the way of action – although there is a dedicated live action arena for drifting displays on site too – but the relaxed atmosphere is still a real attraction and seems to draw out a slightly different modified car owner than the more extreme shows.

With an indoor area in which the best cars are parked within roped-

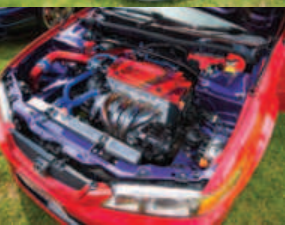
off, carpeted displays, means that at least the show can go on whatever the weather, which is a real bonus if the heavens open.

But it also means that people can really go to town with showing their cars, not just with the level of polishing and general cleanliness, but also by completing their displayed vehicle with a full on theme with props! While this may be a little over the top for some, it's genuinely fun to see

this other side of tuning, and you certainly can't knock the effort that goes in to both the cars themselves and the presentation!

All in all, Mod Nats is probably not a show for hardcore Jap heads, but is still a great show to visit, either for the day or the weekend, as its varied mix of cars can really open your eyes to what can also be achieved with your car that can't be measured with a dynamometer! 





ABP MOTORSPORT

We share the passion!

Call our Sales Team Today

01270 567 177

HONDA Civic Type R FN2

ABP have developed a full range of tuning parts for the FN2 Civic Type R using our own development car. Testing on the Nurburgring we offer exclusive suspension, brake and performance parts that guarantee to bring your Type R alive! Who said the EP3 was better.



EXHAUSTS

MILLTEK SPORT ABP exclusive cat-back stainless steel exhaust system.....	£499.00
These exclusive to ABP Milltek systems are quite simply a must have. Superb fit, beautiful quality, amazing soundtrack and good power gains.	
MILLTEK SPORT 3" round tailpipe trims.....(pair)	£125.00
PIPER Stainless Steel Race exhaust manifold & stainless de-cat pipe.....	£630.00
PIPER Stainless Steel Race exhaust manifold & 200CEL Sports Cat.....	£770.00
O2 simulator (removes ECU light with race manifold fitted).....	£70.50
PIPER Stainless steel cat-back exhaust system.....	£520.00
HKS Sport Muffler cat-back exhaust system (3" tailpipes & HKS trims).....	£862.00

FITTING AVAILABLE ON ALL PRODUCTS / UK & WORLDWIDE DELIVERY SERVICE

AIR FILTERS

K&N Sports air filter replacement element (lifetime warranty).....	£41.00
K&N Apollo closed box air filter induction kit.....	£158.00
AEM Short Ram air induction kit (polished or red alloy intake pipe).....	£169.00
POWERTEC Stainless steel air filter kit (including heat shield).....	£149.00
PIPERCROSS Sports air filter kit (including heat shield).....	£145.00
HKS Racing Suction Kit (includes alloy intake pipe).....	£365.00

SUSPENSION

EIBACH ABP Exclusive -30mm lowering spring kit.....	£150.00
These are the very best springs you can buy for the FN2. Offering the ultimate in looks, handling, reduced roll and better ride quality there really are no downsides. Please call for fully fitted prices.	
EIBACH Pro-Kit -15mm lowering spring kit.....	£159.00
All the advantages of our -30mm kits but with less lowering!	
EIBACH Front adjustable camber bolts (essential on lowered cars).....	£25.00
EIBACH Rear camber & toe shims (to get the very best handling).....(each)	£8.50
KW Variant 1 coil-over suspension kit (fully adjustable ride height).....	£879.00
KW Variant 2 coil-over suspension kit (fully adjustable height & rebound).....	£1,069.00
KW Variant 3 coil-over suspension kit (fully adjustable height, bump & rebound).....	£1,379.00
TEIN S-Tech lowering spring kit (Front -15mm Rear -20mm).....	£228.00
TEIN Superstreet coil over kit with upper mounts (adjustable height & damping).....	£1,080.00
EIBACH 15mm ProSpacer kit (improves looks, steering feel & high speed stability).....	£108.00
ABP Stage 1 Fast Road suspension geometry set-up (including camber bolts).....	£135.00
This set up in ABP's workshop improves the FN2 massively. Improving turn in, reducing under-steer and offering greatly improved feel & handling. A MUST HAVE MODIFICATION.	
ABP Stage 2 Fast Road suspension geometry set-up (including bolts & rear shims).....	£224.00
As above but stage 2 also includes removing the rear hubs, fitting correct camber & toe shims (included in price) and setting both front and rear geometry to fast road spec.	

BRAKES

STOPTECH Fast Road Front brake pads.....(set)	£49.00
STOPTECH Front Sport Stop Grooved brake discs.....(pair)	£190.00
STOPTECH Rear Sport Stop Grooved brake discs.....(pair)	£145.00
POWERSLOT Front 350mm Big-disc conversion kit.....	£355.00
Kit uses original caliper and offers superior looks & braking with excellent 350mm discs. Kit comes complete with 350mm discs, caliper relocation brackets and fitting kit.	
STOPTECH Touring 300mm 4-POT Brake conversion kit*.....	£995.00
These new budget 300mm kits use a unique directional veined 300mm grooved disc with the ST41 4-pot caliper. Kit comes complete with discs, calipers, pads, hoses and fitting kit. This kit looks great and performs even better!	
STOPTECH BBK 328mm Brake caliper conversion kit*.....	£1,450.00
The legendary Stoptech Big Brake Kit is simply awesome in every way. Using 2-piece 328mm discs and ST40 4-pot calipers the performance on offer from this kit is unreal. Essential for ultra fast road or serious track use. Kit comes complete with 2-piece 328mm discs, alloy bells, calipers, pads, hoses and fitting kit. Choice of Black or Red calipers	
*EIBACH 15mm Pro-Spacer kit (required to fit Stoptech brake kits behind OE Honda wheels).....	£108.00
FERODO DS2500 Front high performance brake pads.....	£99.50
FERODO DS2500 Rear high performance brake pads.....	£92.50
EBC Red Ceramic Front high performance brake pads.....	£87.00
EBC Red Ceramic Rear high performance brake pads.....	£54.00
EBC Turbo Groove drilled & grooved front brake discs.....(pair)	£245.00
TAROX G88 40-Groove high performance front brake discs.....(pair)	£217.00
GOODRIDGE Stainless steel 6-line brake hose kit (including distribution blocks).....	£175.00
MOTUL RBF600 High performance brake fluid (1/2 LT).....	£15.50
FOLIATEC Caliper paint kit (various colours).....	£24.90

FITTING AVAILABLE ON ALL PRODUCTS / UK & WORLDWIDE DELIVERY SERVICE

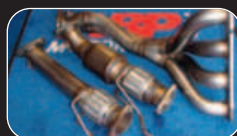
OTHER ITEMS

HKS Iridium spark plugs (set 4).....	£82.00
PIAA Headlight bulb upgrade kits (Set of 4 bulbs - sidelight, dip & main beam).....	from £95.00
YOKOHAMA 225/40X18 PARADA Spec 2 tyre.....	£125.00
YOKOHAMA 225/40X18 ADVAN NEOVA A008 tyre (ultimate track day tyre).....	£169.00
YOKOHAMA 225/35X19 Advan Sport OE tyre.....	£215.00

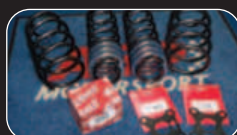
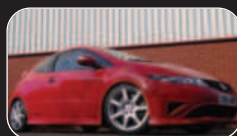
SERVICING FOR FN2 & EP3 TYPE R

ABP offer a full range of servicing to HONDA specification which will not affect the manufacturer's warranty.	
12 month / 12,500 mile service to HONDA spec including all parts & Labour.....	£119.00
24 month / 25,000 mile service to HONDA spec including all parts & Labour.....	£198.40
36 month / 37,500 mile service to HONDA spec including all parts & Labour.....	£154.00
48 month / 50,000 mile service to HONDA spec including all parts & Labour.....	£198.40
60 month / 62,500 mile service to HONDA spec including all parts & Labour.....	£119.00
72 month / 75,000 mile service to HONDA spec including all parts & Labour.....	£385.00
All of our services include MOTUL fully synthetic oil, Honda oil & air filters & NGK spark plugs. Cars are serviced to exact HONDA specification and service books are stamped maintaining the warranty. If cars are fitted with performance air filters above prices will be reduced accordingly.	

FULL RANGE OF PARTS AVAILABLE FOR ALL MAKES / MODELS
HONDA • TOYOTA • MAZDA • MITSUBISHI • SUBARU • NISSAN • LEXUS



**ALL PRICES
INCLUDE VAT**



ABP MOTORSPORT - Your One Stop Tuning Shop

- Modern easy to find premises
- Established for over 45 years
- Fully equipped on-site workshop
- Easy access of the M6 (J16)
- Large parking facilities
- Passionate staff
- Fast mail order
- 1st class customer service
- Excellent product availability
- Competitive prices

Please phone
if your car is not
listed, as only a small
range of our parts
are listed

- Mail Order • Retail Tuning Shop
- Workshop Fitting Service • MOT
- Servicing • Repairs & Tuning

HONDA Civic Type R EP3

ABP purchased an EP3 Type R back in 2001 with the sole aim of developing a full range of tuning parts. We offer exclusive ranges of suspension, brake and performance parts that we believe are the very best available. 10 years on the EP3 is still a great car and more affordable than ever so with a few choice mods the tuning world is your oyster...



EXHAUSTS

PIPER ABP exclusive Single-box cat-back stainless steel exhaust system.....	£349.00
These exclusive to ABP Piper single silencer systems are quite simply a must have. Superb fit, beautiful quality, amazing soundtrack and good power gains. System has a 6x4" oval tailpipe.	
PIPER Twin-box cat-back stainless steel exhaust system As above but with 2 silencers - same power with less sound!.....	£399.00
PIPER Stainless Steel Race exhaust manifold & stainless de-cat pipe.....	£498.00
PIPER Stainless Steel Race exhaust manifold & 200CEL Sports Cat.....	£678.00

****Independent rolling road tests show an incredible increase of +22BHP using a PIPER manifold, de-cat and exhaust system on the EP3 Type R!****

DC SPORTS Stainless steel SC3 cat-back exhaust system (4" round tip).....	£430.00
DC SPORTS Stainless steel SHORTY exhaust manifold (uses original cat).....	£375.00
DC SPORTS Stainless steel RACE exhaust manifold (removes catalyst).....	£395.00
All DC Sports items are beautifully crafted in polished stainless steel and offer fantastic looks and power gains. The SC3 system comes with a removable silencing baffle ideal for track days.	
O2 simulator (removes ECU light with race manifold fitted).....	£70.50
HKS Hi Power 409 cat-back exhaust system (120mm angled tailpipe).....	£471.90
Stunning JAP style exhaust system with removable silencing baffle and polished 120mm tailpipe.....	£204.00
SUPERSPRINT Stainless Steel straight through 8-pipe.....	£26.00
ENERGY SUSPENSION Up-rated engine mount insert bush kit.....	£26.00
Essential when using any modified exhaust manifold. These also aid traction & prevent wheel hop.	

FITTING AVAILABLE ON ALL PRODUCTS / UK & WORLDWIDE DELIVERY SERVICE

AIR FILTERS

K&N Sports air filter replacement element (lifetime warranty).....	£49.00
K&N 571 Air filter kit.....	£109.00
K&N Typhoon air filter induction kit (wrinkle red finish intake pipe).....	£150.00
AEM CAI Cold Air Induction kit (filter relocated behind front bumper) +15BHP.....	£245.00
AEM V2 Air Filter Induction kit (Unique dual plenum intake pipe) +18BHP.....	£265.00
PIPERCROSS VENOM Sports air filter kit (fully enclosed air box system).....	£175.00

Intake kits make a massive difference to the EP3 Type R offering anything up to +18BHP power gains.

Choosing the right combination of exhaust system and filter kit can add up to +25 BHP power improvements!

SUSPENSION

EIBACH ABP Exclusive -30mm lowering spring kit.....	£150.00
These are the very best springs you can buy for the EP3. Offering the ultimate in looks, handling, reduced roll and better ride quality there really are no downsides.	
EIBACH Pro-Kit -15mm lowering spring kit - All the advantages of our -30mm kits but with less lowering!.....	£159.00
EIBACH Front adjustable camber bolts (essential on lowered cars).....	£25.00
EIBACH Rear fully adjustable camber arms (to get the very best handling).....(pair)	£135.00
BILSTEIN B4 Shock absorber kit (front & rear shocks).....(set 4)	£385.00
BILSTEIN B8 Sports up-rated shock absorber kit (front & rear shocks).....(set 4)	£655.00
BILSTEIN are arguably the Worlds best shock absorbers, developed on the Nurburgring they offer fantastic chassis control without the extremes of coil-over set-ups. Simply the best real World suspension solution.	
TEIN S-Tech lowering spring kit -20mm.....	£228.00
TEIN BASIC coil over suspension kit (adjustable height only).....	£708.00
TEIN Superstreet coil over kit (adjustable height & damping).....	£804.00
TEIN Superstreet coil over kit with upper mounts (adjustable height & damping).....	£1,080.00
EIBACH 15mm ProSpacer kit (improves looks, steering feel & high speed stability).....	£108.00
JDM Rear Anti Roll Bar (including bushes).....	£102.50
E-TECH front polished alloy strut brace.....	£87.50
E-TECH front wide-bar lightweight alloy strut brace.....	£170.00
ABP Fast Road suspension geometry set-up (including front camber bolts).....	£155.00
This set up in ABP's workshop improves the EP3 massively. Improving turn in, reducing under-steer and offering greatly improved feel & handling. A MUST HAVE MODIFICATION.	

FITTING AVAILABLE ON ALL PRODUCTS / UK & WORLDWIDE DELIVERY SERVICE

BRAKES

STOPTECH Fast Road Front brake pads (set).....	£49.00
STOPTECH Fast Road Rear brake pads (set).....	£38.00
STOPTECH Front Sport Stop Grooved brake discs (pair).....	£190.00
STOPTECH Rear Sport Stop Grooved brake discs (pair).....	£140.00
POWERSLOT Front 350mm Big-disc conversion kit.....	£355.00
Kit uses original caliper and offers superior looks & braking with excellent 350mm discs. Kit comes complete with 350mm discs, caliper relocation brackets and fitting kit.	
STOPTECH Touring 300mm 4-POT Brake conversion kit*.....	£995.00
These new budget 300mm kits use a unique directional veined 300mm grooved disc with the ST41 4-pot caliper. Kit comes complete with discs, calipers, pads, hoses and fitting kit. This kit looks great and performs even better!	
EIBACH 15mm Pro-Spacer kit* (required to fit Touring kit behind OE Honda wheels).....	£108.00
STOPTECH BBK 328mm Brake caliper conversion kit.....	£1,450.00
The legendary Stoptech Big Brake Kit is simply awesome in every way. Using 2-piece 328mm discs and ST40 4-pot calipers the performance on offer from this kit is unreal. Essential for ultra fast road or serious track use. Kit comes complete with 2-piece 328mm discs, alloy bells, calipers, pads, hoses and fitting kit. This kit fits behind the original Honda 17" alloy. Choice of Red or Black calipers.	
FERODO DS2500 Front high performance brake pads.....	£99.50
FERODO DS2500 Rear high performance brake pads.....	£91.50
EBC Red Ceramic Front high performance brake pads.....	£87.00
EBC Red Ceramic Rear high performance brake pads.....	£58.00
EBC Turbo Groove drilled & grooved front brake discs.....(pair)	£245.00
TAROX G88 40-Groove high performance front brake discs.....(pair)	£217.00
GOODRIDGE Stainless steel 4-line brake hose kit (zinc plated unions).....	£62.00
MOTUL RBF600 High performance brake fluid (1/2 LT).....	£15.50
FOLIATEC Caliper paint kit (various colours).....	£24.90

OTHER ITEMS

HKS Iridium spark plugs (set 4).....	£82.00
NEUSPEED Short Shift gear lever kit.....	£95.00
EXEDY OE 3-piece Clutch kit - Fitting service available.....	£195.00
PIAA Headlight bulb upgrade kits (Set of 4 bulbs - sidelight, dip/main beam).....	from £65.00
PIAA Silicone front wiper blade kit (pair of silicone wiper blades).....	£43.00
YOKOHAMA 215/40X17 PARADA Spec 2 tyre.....	£92.00
YOKOHAMA 215/40X17 ADVAN NEOVA A008 tyre (ultimate track day tyre).....	£156.00
ABP recommend changing the original 205/45X17 tyres to the better 215/40X17 size. Wider, slightly lower profile these tyres offer improved handling, grip, feel and they're cheaper!	

← SERVICING - See FN2 Listing

01270 567 177

NEXT DAY DELIVERY

PHONE TODAY FOR NEXT DAY DELIVERY* or WHY NOT CALL INTO OUR SHOWROOM TO COLLECT OR LET US FIT THE PARTS FOR YOU IN OUR FULLY EQUIPPED ON-SITE WORKSHOP

* Orders must be placed before noon and are only available on stock items (excluding Sunday). Please phone for postage prices on your order

~ EXPORT ORDER ARE WELCOME ~

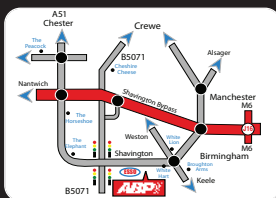
Orders can be placed by phone with a credit/debit card for immediate despatch. Postal orders and cash are also acceptable. At ABP full security checks are made to ensure the validity of the credit card holder. All attempted credit card frauds are reported to the police.

www.abpmotorsport.co.uk

~ ALL PRICES INCLUDE VAT ~

We reserve the right to change prices in accordance with certain manufacturers. Rights of cancellation details supplied. Prices are correct at time of going to press. E&OE.

How to find us



ABP Motorsport
416 Newcastle Road, Shavington,
Crewe, Cheshire CW2 5EB
Fax 01270 568177
sales@abpmotorsport.co.uk

Opening Hours
Mon-Fri 8.30am - 6.00pm
Sat 9.00am - 3.00pm

WORKSHOP FITTING SERVICE

Our fully equipped modern workshop allows us to carry out a full range of servicing, maintenance & performance modifications in-house. Staffed by fully qualified enthusiastic technicians trained to the highest standards we are able to skilfully fit, set-up, tune and optimise any modifications to get the best out of your car - This is our passion! From regular manufacturer spec servicing, MOT testing, performance tuning & chassis development to full on track day preparation we can offer the complete service.

ABP's workshop carries Cheshire County Council Trading Standards approval assuring you of the highest quality and 1st class customer service. ABP achieved Trading Standards first perfect 100% mystery shop result in August 2010.

ABP were awarded CAT magazines coveted title of National Garage of the Year in both 2010 and 2011. An award we all take very seriously and testament to our very high standards.

- Performance Parts Installation
- Manufacturer Spec Servicing
- Suspension Fitting Specialists
- Wheel alignment & Suspension Geometry
- Maintenance & Repairs
- MOT Testing Station
- Customer Supplied Parts Fitted
- Clutch fitting
- Cam / Timing Belts Replaced
- Fully Skilled & Experienced Staff
- Trading Standards Approved
- National CAT Garage of the Year 2010 & 2011



SERVICING AND MAINTENANCE

We offer a full servicing & Maintenance service to our customers. ABP Service all cars to manufacturer specification therefore maintaining warranties & correct service history!

The advantages our service gives you over & above the dealers (or stealers!) are:

- Enthusiastic passionate staff
- Guaranteed level of personal service
- Full range of services including modifications
- Competitive Labour prices
- All makes / models worked on
- No problems with imports
- One-Stop tuning shop

Full range of servicing / maintenance available including timing belts, clutches, brakes, suspension & steering work.

Please phone with your exact requirements and we will be happy to advise and give competitive prices.

WHEEL ALIGNMENT & SUSPENSION GEOMETRY

- Vague Steering?
- Steering wheel miss-aligned?
- Excessive or uneven tyre wear?
- General poor handling?



Lots of Japanese cars have fully adjustable wheel alignment, castor adjustment & camber adjustment both front and rear. Manufacturer's geometry specifications allow for very generous tolerances which can lead to poor handling, excessive tyre wear, vague steering feel and even reduced MPG! ABP can 'blueprint' your suspension geometry settings allowing you to benefit from maximum steering response & improved grip along with improved tyre life and increased economy. We have the latest computerised 4-wheel alignment equipment and are able to optimise the geometry settings on your car.

ABP can also offer unique FAST ROAD settings for many cars offering improved handling and turn in by introducing more extreme alignment practices. We can also set your geometry up to your own individual spec for track use or drifting etc.

Please phone for exact prices on your car & prepare to feel the differences immediately.

Examples

Full suspension 4-wheel alignment check and report (no adjustment)	£55.00
Front Wheel Alignment check & adjust.....	from £35.00
Front & Rear Wheel Alignment check & reset	from £75.00
Subaru Impreza Turbo / STi / WRX & Mitsubishi EVO 5-10	£135.00
Check and reset front & rear Wheel Alignment & Camber angles to Fast Road spec	
HONDA S2000 Check and reset front & rear Wheel Alignment; Camber and Castor angles to Fast Road or Honda spec.....	£140.00
Honda Civic Type R EP3 ABP Fast Road suspension geometry set-up (Including front camber bolts)	£155.00
This set up includes supplying & fitting adjustable front camber bolts, reset the front & rear Wheel Alignment & Camber angles to ABP Fast Road spec. These improve the EP3 massively. Improving turn in, reducing under-steer and offering greatly improved feel & handling and reduced tyre wear!	
Honda Civic Type R FN2 ABP Stage 1 Fast Road suspension geometry set-up (Including camber bolts)	£135.00
This set up includes supplying & fitting adjustable front camber bolts, reset the front Wheel Alignment & Camber angles to ABP Fast Road spec. These improve the FN2 massively. Improving turn in, reducing under-steer and offering greatly improved feel & handling.	
Honda Civic Type R FN2 ABP Stage 2 Fast Road suspension geometry set-up (Including bolts & rear shim kit)	£224.00
As above but stage 2 also includes removing the rear hubs, fitting correct camber & toe shims (included in price) and setting both front and rear geometry to fast road spec.	

SUSPENSION AND LOWERING

ABP can provide various levels of suspension tuning for all Japanese vehicles. We offer a full fitting service on over 7 manufacturers lowering spring options, numerous sports shock absorbers and many complete adjustable suspension kits including fully adjustable coil-over kits.

Spring kits available from EIBACH, TEIN, SPAX, H&R, GMAX, KW and Pi

Shock Absorbers available from KONI, BILSTEIN, KW, SPAX and EIBACH

Suspension kits available from EIBACH, KONI, BILSTEIN, TEIN, KW, H&R, SPAX & GMAX

Lowering spring kits supplied & fitted

Sports suspension kits supplied & fitted

Fully adjustable coil-over suspension kits supplied & fitted

Phone ABP for a price on either lowering or making your car 'Really Handle!'

FITTING PRICES

ABP can fit all of the parts that we sell and we are also happy to fit customer provided parts in our workshop.

Here are some general fitting prices for our workshop:

Sports exhaust systems fitting	from £55.00	Wheel alignment checks	from £55.00
Performance air filter induction kits fitting	from £55.00	Timing / Cam belts fitting	from £82.50
Brake discs & pads fitting	from £82.50	Clutch kits fitting	from £165.00
Big Brake conversion kits fitting	from £110.00	Pre / Post Track day check-over	from £55.00
Suspension kit fitting	from £165.00		

Please phone ABP's workshop on 01270 567177 for accurate prices on fitting parts to your car or to arrange a workshop booking time.

ALL CARS CATERED FOR - PLEASE CALL

All labour prices do not allow for seized, broken or damaged components on your car.



ABP are an official UK importer of STOPTECH brakes and offer the full range of high performance brake pads, brake discs and the AWESOME caliper conversion kits. Used extensively in Time Attack series cars these kits are reputed to be the best available. Full range of 4 & 6 pot kits available for most Japanese cars please call for prices to make your car STOP!

STOPTECH High performance brake pads	from £38
EVO 5-9 & Impreza STi FRONT & REAR brake pad set	£118
STOPTECH High performance grooved brake discs	from £140
Mitsubishi EVO 5-9 Front grooved brake discs	£225
Mitsubishi EVO 5-9 Rear grooved brake discs	£195
Honda Civic Type R FRONT & REAR grooved brake disc kit	£330
STOPTECH Big Brake Caliper conversion kits	from £995
Honda Civic Type R EP3 & FN2 Tuning kit (300mm)	£995
Honda Civic Type R EP3 & FN2 (4-pot 328mm)	£1,450
Mitsubishi EVO 7-10 (4-pot & 6-pot kits)	from £1,550
Nissan Skyline R32, 33, 34 (4-pot & 6-pot kits)	from £1,550

Full range available for Honda, Lexus, Mazda, Nissan, Subaru & Toyota



AEM offer the very best intake kits for your Japanese car. AEM lead the way in air filter technology and now use the revolutionary DRYFLOW filter units. ABP are an official AEM importer dealing directly with the manufacturer!

• Massive Range stocked • Excellent power gains • Call for prices

Cold Air Intake Kits

Honda Integra Type R DC2	£269.00
Honda Integra Type R DC5	£255.00
Subaru Impreza inc. STi (2001 on)	£262.00
Subaru Impreza Inc STi (2008 on) +308HP	£255.00
Mazda MX5 (2006 on)	£275.00
Mitsubishi EVO 10 +168HP	£275.00

Short Ram Intake Kits

Mitsubishi EVO 7, 8, 9 (inc. heat shield)	£235.00
Nissan 350Z (inc. heat shield)	£315.00
Subaru Impreza inc. STi (2001 on)	£169.00
V2 Dual Plenum Air Intake Kits	
Honda S2000	£275.00
Honda Civic Type R EP3 & DC5 Integra	£265.00



ABP are official importers UK importers of DC Sports products direct from the USA.

Products include ceramic coated & stainless steel exhaust manifolds and stainless steel exhaust systems.

DC Sports Exhaust Manifolds

Honda Civic Type R EP3 Stainless Steel Race manifold - (These fully polished manifolds also remove the catalyst)	£395.00
Nissan 350Z Ceramic Coated tubular sports manifolds (pair)	£475.00
Mitsubishi EVO 5-9 Large Bore Stainless Steel Race Manifold	£399.00

DC Sports SCS Stainless Steel Exhaust Systems

Honda Integra Type R DC2	£399.00
Honda Integra Type R DC5	£430.00
Honda Civic Type R EP3 (inc. removable baffle)	£430.00
Mitsubishi EVO 7, 8 & 9	£449.00
Nissan 350Z (Sounds like a 911 Race car!)	£699.00
Subaru Impreza (2002 on) inc. STi & WRX	£425.00

FITTING AVAILABLE ON ALL PRODUCTS / UK & WORLDWIDE DELIVERY SERVICE



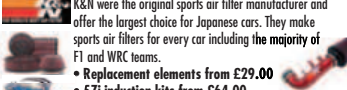
EIBACH produce the Worlds finest springs with quality second to none. Not only do they improve the looks of the car but they also offer better handling with improved ride quality. ABP offer the full range of EIBACH suspension products available including lowering spring kits, suspension kits, alignment products and wheel spacer kits. PLEASE CALL



Bilstein produce a massive range of shock absorbers and suspension kits for Japanese cars including 84 replacement dampers, B6 & B8 sports shock absorbers and fully adjustable coil over suspension kits. All Bilstein development work is carried out on the legendary Nurburgring.



ABP can supply and fit the full range of HKS tuning products from Japan. HKS offer some of the finest quality tuning parts available in the World. Products available include sports air filter kits, sequential dump valve kits, iridium spark plugs, exhaust systems, intercoolers, boost controllers, suspension, cams, electronics and more. PLEASE CALL



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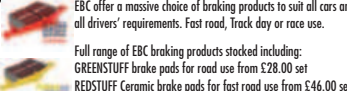


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MIDSHIP MISSILE

WITH OVER 700BHP PACKED
BEHIND THE REAR SEATS, THIS
MR2 IS CAPABLE OF BLOWING
AWAY ANYONE WHO
UNDERESTIMATES IT

WORDS: DAN GOODYER
PICS: OLLIE WILDSMITH

Street-driven cars are rarely extreme. You find the big-power cars that compete at the sharp end of the Jap Drag Series at Santa Pod or the MLR 30-130 shoot-outs are trailered to and from events. However, Moshin 'Mossy' Vakawa got into his MR2 one morning and drove 150 miles to an MLR 30-130 event, recorded the third highest top speed, seventh fastest 30-130mph time and then drove 150 miles home again!

These MLR 30-130 events are packed with serious machinery these days, so to place up amongst the stripped-out and trailered cars in a 21-year-old MR2 T-bar with a full interior is seriously impressive. Mossy managed 30-130 in just 10.72s and hit 181mph from a standing start in roughly 1.5 miles, yet there aren't many clues on the outside that this MR2 is packing heat. The bodywork additions are relatively subtle. There's a GReddy lip on the front bumper, TOM's sideskirts and TOM's rear bumper, but that's about it. It's subtle.

The wheels aren't much of a giveaway either. They're lightweight RAYS alloys, which Mossy claims are the same

design as TRD fitted to their special MR2. You'd have to be a real Toyota or MR2 enthusiast to know that, though. To most onlookers, the meaty R888 Toyo rubber is a more obvious signal of intent. Pop the engine cover, however, and you're left in no doubt that this engine has real fire-power.

For a start, look at the diameter of the pipework! You can't miss the large chargecooler, either, and when you pop the boot, there's a hardcore fuel system on show. It's quite the sleeper. Well, until Mossy puts his foot down, anyway. He explains: 'I bought the car back in 2005. I'd had a couple of MR2s before, but I always wanted a Rev3 GT-S, as they're more powerful than the earlier cars, with a bigger turbo, different engine internals, larger fuel injectors and a limited slip differential.'

Mossy intended to drive the car and just enjoy it. A few upgrades were on the cards but not a high priority. He already had some pretty tasty daily-drivers to have some fun in. The MR2 was more of a car he was into at the time. During his MR2 ownership, Mossy has had a big-power Evo IX and also a Nissan R35 GT-R, so he's no

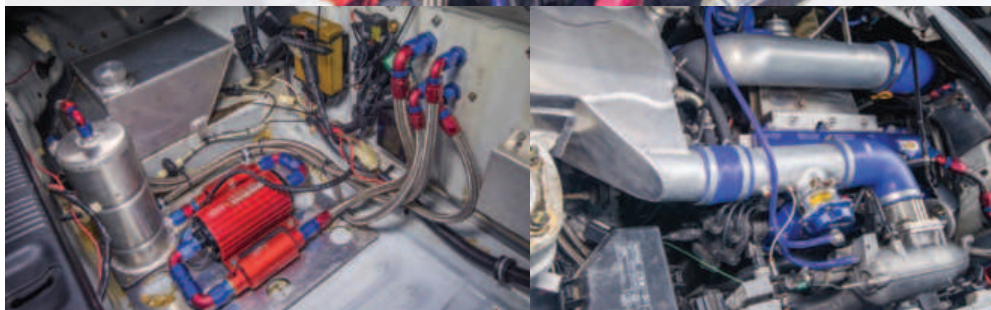
stranger to seriously fast Japanese cars. But then fate stepped in...

'I was driving down the M6 when the engine let go,' Mossy explains. 'The Rev3 blocks tend to get hot and crack, and I think that's what happened to mine. I weighed up my options, had a look around the forums for pointers, then decided to phone a specialist. And who better than Fensport? They run the Toyota Sprint Series and their demo cars have always performed – from their Caldina to the famous Celica GTX and also their current GT86 turbo.'

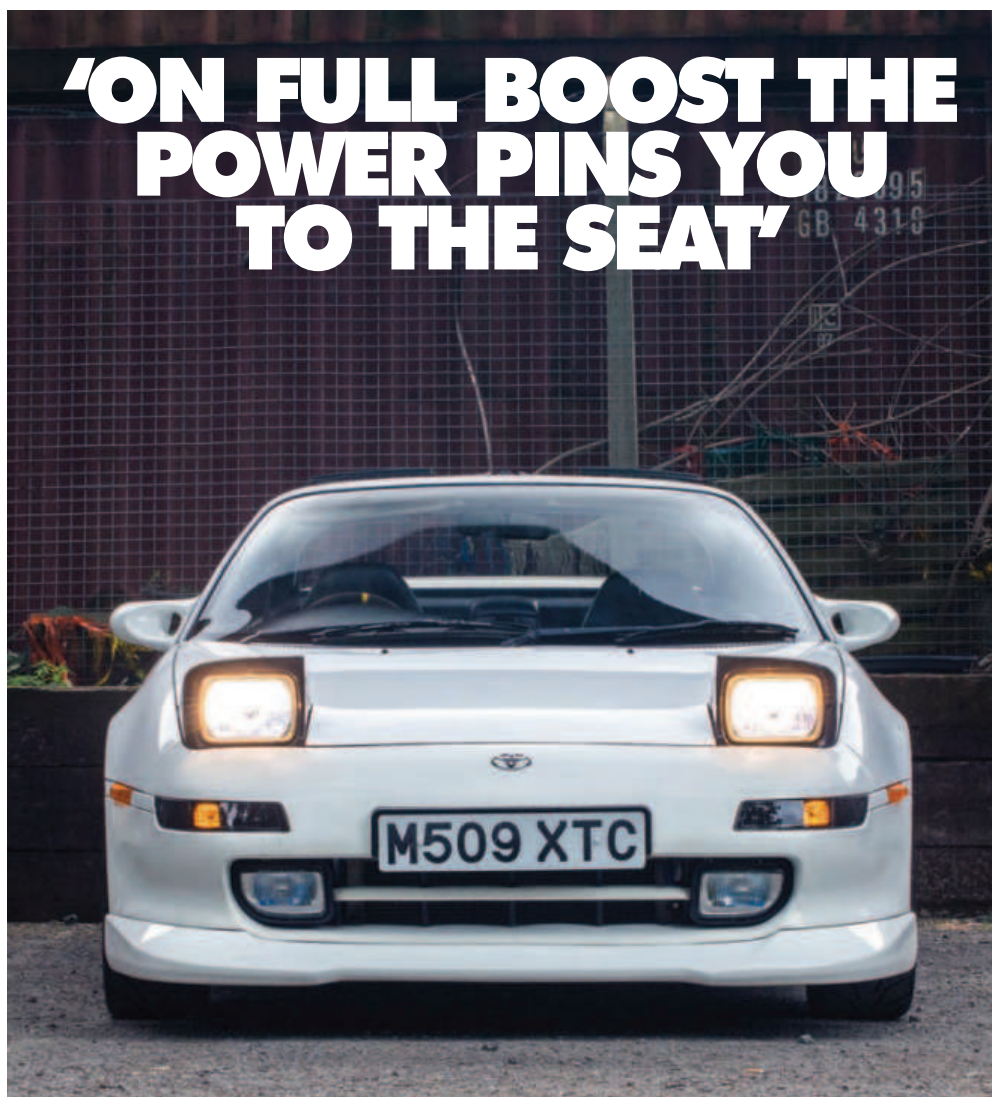
Adrian and the guys were really helpful and suggested that Mossy have a chat with Jon Edwards at JEMS Race Engineering. Jon has been building engines for the hottest Toyotas in the UK for many years. Mossy initially had the idea of fitting a set of forged pistons, some cheap rods and an intercooler. But after several discussions, it was a high-revving 2.1-litre engine that Jon suggested to give Mossy the power and driving experience that he was really after.

The base for this engine came from Fraser McKellar. If these names don't mean much to you, then don't kick yourself

GAUGING INTEREST
MOSSY HAS AN INTERESTING
GAUGE INSIDE HIS CAR. IT'S A
DUAL TEMPERATURE GAUGE,
MEASURING THE AIR
ENTERING AND THEN EXITING
THE INTERCOOLER. SO HE
CAN MEASURE HOW
EFFECTIVE HIS
CHARGECOOLER IS AND KEEP
AN EYE ON THE AIR GOING
INTO THE ENGINE. IF IT GETS
TOO HOT, HE CAN SHUT THE
ENGINE DOWN AND
INVESTIGATE. WHEN ITS
COLD, HE KNOWS THE
ENGINE IS GOING TO MAKE
GOOD POWER



'ON FULL BOOST THE POWER PINS YOU TO THE SEAT'



too hard. Just be aware that we're talking about guys that really know their stuff. It's a feature of Mossy's build that he has been very specific about the people involved in the process: 'I wanted people at the top of their game to work on the car. Fraser has been involved with stress-testing the Toyota Team Europe [TTE] parts, and he sourced a genuine TTE block, crankshaft and a fancy Inconel exhaust manifold, which are the same parts they used in the WRC rally cars.'

GRIP GAMES

THE FACTORY 5-SPEED GEARBOX IS PROVING TOUGH ENOUGH FOR THE JOB BUT ONLY AFTER IT WAS STRIPPED AND THE INTERNALS SHOT-PEENED, BEFORE BEING REBUILT. THIS PROCESS INVOLVES FIRING METAL SHOT AT THE COMPONENTS, THE IDEA BEING THAT THIS FATIGUES THE METAL AT A MOLECULAR LEVEL. THE RESULT IS A SURFACE THAT IS ALREADY DEFORMED AND THEREFORE LESS LIKELY TO WEAR OR CRACK IN THE FUTURE. THROW IN A CUSTOM BRACE TO KEEP THE 'BOX IN PLACE, A KAAZ LSD TO LOCK THE REAR WHEELS TOGETHER AND AN AGGRESSIVE MULTI-PLATE CLUTCH AND YOU HAVE ALL THE RIGHT INGREDIENTS TO MAKE FULL USE OF THE MR2'S NATURAL ABILITY TO LAUNCH OFF THE LINE LIKE A BALLISTIC MISSILE



The TTE block has much thicker walls than the production car spec 3S-GTE, as you might expect from a genuine competition engine. Even so, the block needed to be improved further still before it would be capable of handling the big-boost fun that Mossy had planned. Back at JEMS Race Engineering, Jon modified both the oil and coolant galleries to keep the engine as happy as possible. He also carried out lots of work on the cylinder head.

Mossy adds: 'The head has been gas-flowed with a five-angle valve job and all the tricks. The build ended up taking about three years in total. Throughout it all my friend Flex was there for me. He drove here, there and everywhere to collect bits for me. If there was something that needed sorting out and I couldn't be there, he'd usually step in and get it sorted for me. That was a big help.'

The TTE exhaust manifold needed work, too. Mossy explains: 'The rally cars ran a one-piece turbo and manifold, so Jon had to weld a flange onto it so we could mount the GT35R turbo on it. The manifold

is made from Inconel, which is much lighter than stainless steel and usually a lot more expensive. Inconel deals with heat and corrosion better than stainless, too, so it should last longer. I've found that stainless steel manifolds can crack but I've not had any problems with this one so far.'

The turbo has been tweaked too, with custom porting to help spool and prevent compressor surge. In fact, much of the engine is bespoke. The kind of hardcore build you'd usually find in a high-end drag or racecar. But here it is, in all its shiny goodness, in the back of a road car. That makes the odd traffic light Grand Prix a bit more interesting.

Before he could hit the road though, Mossy needed the engine to be mapped. A regular on the International MR2 Owners Club (imoc) forum, he became friends with fellow user Dino Micouris. Dino is one of those chaps who knows an awful lot about the Toyota MR2 and tuning in general, and he introduced Mossy to Dave Rowe at EPS Motorsport.

Dave is Mr MoTeC. The Australian is an ECU genius

who competes in his Mitsubishi Evo at the Pikes Peak hillclimb in the USA. A car that we featured on the cover of *Japanese Performance*. Dave mapped the MoTeC M4 ECU on Mossy's car. Most of it on the road, followed by a dyno session or two to record power runs. There's a MoTeC dial that Dave has programmed with 11 different settings.

Mossy adds: 'Setting one is just wastegate boost pressure, which is 14psi and around 350bhp. The boost pressure and power increases with each notch on the dial, all the way up to setting 10. That's 32psi and 720bhp on V-Power Nitro. There is an 11th setting that I don't usually tell anyone about. To be honest, I rarely use it. It's set-up for race fuel and gives me roughly an extra 60bhp. So it's actually making around 800bhp when it's flat-out!'

That's a heck of a lot of grunt in a car that weighs relatively little. Mossy agrees: 'It only weighs 1100kg, so the power-to-weight ratio is impressive for a car that hasn't been stripped-out and turned into a racer. I love the way it accelerates now. People ask me

**WATER BOY
WATER PLAYS A HUGE PART IN MAKING SURE THE AIR ENTERING MOSSY'S ENGINE IS AS COOL AND DENSE AS POSSIBLE, WHICH IS VERY IMPORTANT AS THE TIGHT MR2 ENGINE BAY GETS LESS AIRFLOW THAN A TRADITIONAL FRONT-ENGINE CAR. FIRSTLY, THERE'S WATER BEING PUMPED AROUND THE METAL JACKET SURROUNDING THE INTERCOOLER CORE, COMMONLY KNOWN AS A CHARGE COOLER. THEN THERE'S A FULL WATER INJECTION SYSTEM WITH A BAFFLED RESERVOIR AND SPECIALIST PUMP TOGETHER THEY HELP GET THE MOST POWER OUT OF THE ENGINE, WHILE HELPING TO COMBAT ENGINE-DAMAGING DETONATION**

if it pushes you back in your seat, but it's more like it pins you to the seat. When it's on full boost it's almost impossible to lift your head up off the headrest!

'It's not like a modern car, where the power comes in so smooth you can hardly tell it's got a turbo,' he continues. 'Dave has mapped the power to still come in relatively smoothly, but it's still older technology and a fairly big turbo, so it winds up and then kicks really hard. It's still making power up at 8500rpm too and it loves to be revved. With the weight over the rear wheels, the sticky tyres, the diff and the way Dave has

TECHSPEC

ENGINE

2.1-litre, 4-cyl, 16v, 3S-GTE engine built by JEMS Race Engineering, customised TTE block, TTE crankshaft, custom Pauter con-rods, custom CP forged pistons, ARP 625 bolt upgrade, ARP head studs, heavily modified cylinder head, Ferrea 1mm oversize valves, HKS 272° high-lift camshafts, custom-ported GT35R turbo with anti-surge compressor housing mounted on TTE Inconel exhaust manifold with custom adapter plate, TIAL 44mm external wastegate, 2x Turbosmart blow-off valves, JEMS Race Engineering custom downpipe and screamer pipe, custom Hayward & Scott exhaust system, custom BMC air intake, 75mm throttle body, JEMS Race Engineering breather setup and header tank, custom rear oil cooler, Aquamist 2C water injection kit, JEMS Race Engineering custom baffled water injection tank, Earls braided lines throughout, Concept Racing chargecooler, Bosch chargecooler pump, high-pressure water lines, Samco hoses, JEMS Race Engineering radiator, Bosch 044 in-tank fuel pump, Aeromotive A1000 external pump and filters, custom swirl pot, Bosch 1,000cc fuel injectors mounted in Wolfkatz fuel rail, TRD engine mounts, custom engine brace, RaceLogic traction control, MoTeC M4 ECU with advanced features and adjustable rotary power switch.

Power: from 350bhp (wastegate) to around 800bhp (race fuel & 32psi)

TRANSMISSION

5-speed OEM shot-peened gearbox, Fensport triple-plate clutch, KAAZ 1.5-way limited slip differential with medium rebound on the plates, KAAZ short final drive ratio, custom gearbox brace

SUSPENSION

BC Racing coilovers, TRD top mounts, HT front and rear anti-roll bars, uprated drop links, polyurethane bushes all around, Cusco front strut brace, Ultra Racing rear strut brace

BRAKES

OEM calipers with cross-drilled and grooved discs, Carbotech XP-10 pads, Goodridge braided hoses

WHEELS & TYRES

7.5x16in (front) and 8.5x16in (rear) Rays alloy wheels with 225/45/16 and 235/45/16 Toyo R888 semi-slick tyres, respectively

EXTERIOR

GReddy lip on GTS front bumper, Ganador wing mirrors, TOM's sideskirts, TOM's rear bumper

INTERIOR

Full GTS interior, custom boost gauge in instrument cluster, SPA chargecooler in/out temperature gauge, Aquamist DDS3 flow gauge, GReddy gearknob, Sparco F1 steering wheel, Momo hub



FOR SALE
WANT TO OWN ONE OF THE FASTEST MR2S EVER BUILT IN THE UK? YOU CAN SAVE YOURSELF A FORTUNE BY HANDING MOSSY £15,995 – A BARGAIN PRICE WHEN YOU CONSIDER HE STOPPED COUNTING AT £40K! SERIOUS ENQUIRIES ONLY TO FLEX ON (07939) 085999


mapped it, there's no wheelspin either. It just grips and goes.'

Mossy has taken his MR2 to Santa Pod just once. He managed a 10.6 @ 131mph. No tweaks or changes, he just drove there, blasted his way up the strip and then drove home again. When we ask how much this combination of power and reliability has cost, Mossy raises his eyebrows and replies: 'I'm not sure, but the cylinder head alone cost about £4000 by the time it was finished! I did start adding up the receipts once, but stopped when they passed

£40,000...'

'Do I regret it? Only a little bit. I've been lucky enough to have some nice cars while I've been able to keep this as a toy, really. Nothing else I've ever driven goes like this, though. It's exactly how I want it and there isn't another one like it on the planet, so that's a nice feeling. No, it's good to create something unique. Something that puts a huge grin on your face and makes you feel like a big kid again.'

The thing is, Mossy is now a father to two young children, one of which is just a few weeks old, so the MR2 is looking for a new owner. He's enjoyed having a grown-up toy capable of scaring his passengers witless, but Mossy's priorities have changed. For now, at least. The

car has recently been to MR2 specialists Rogue Motorsport for a check-up to make sure it's in tip-top condition. While it was there Mossy spent over £3000 on a comprehensive refresh of the whole car that included an overhaul of the fuel system, new braided lines throughout and a new clutch. The missile has been reloaded. Will you be the one to pull the trigger? 

CONTACTS

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01327 702270

FENSSPORT
WWW.FENSPORT.CO.UK
01354 696968

EPS MOTORSPORT
WWW.EPSMOTORSPORT.COM
07735 231417

ROGUE MOTORSPORT
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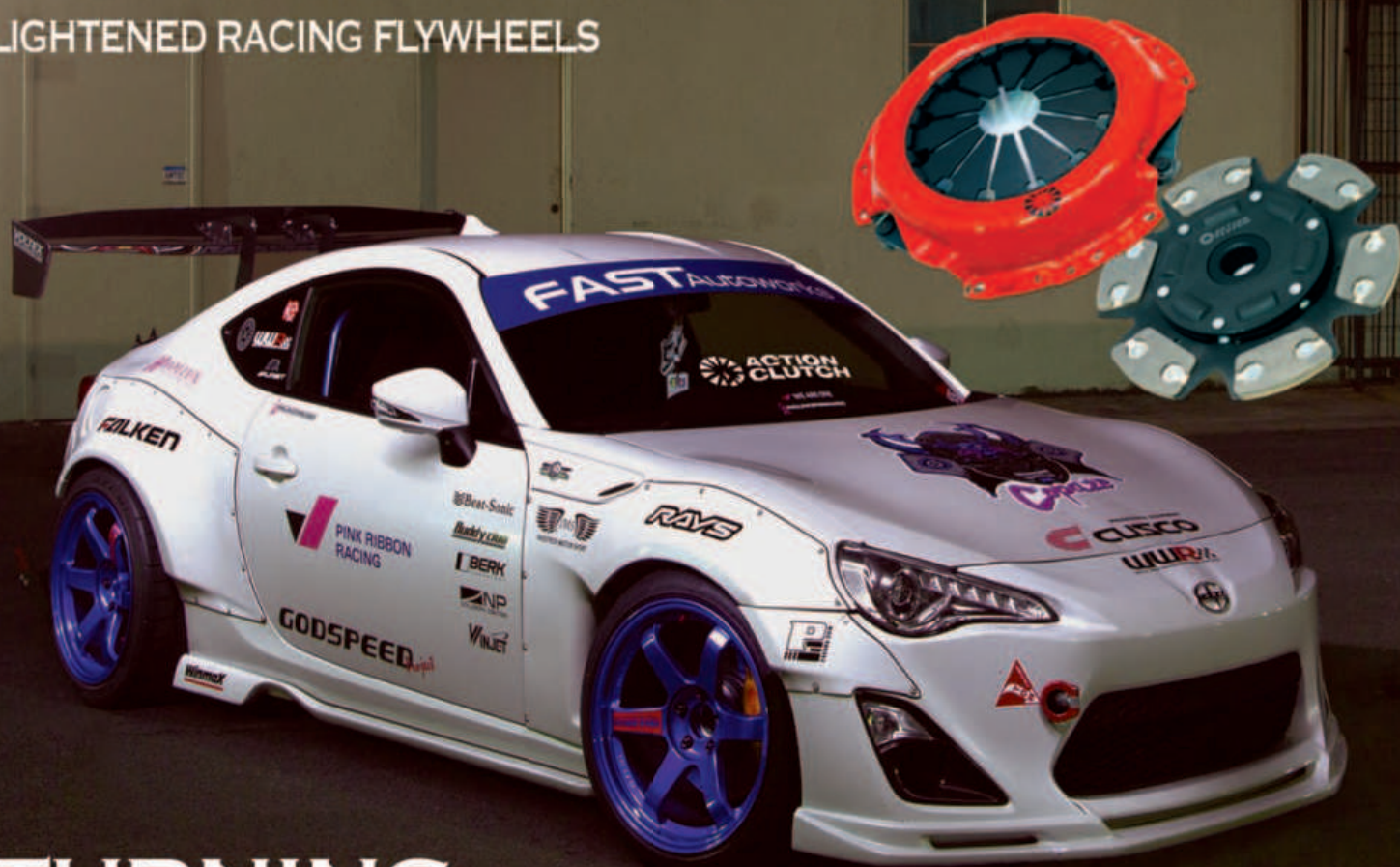


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WORDS & PICS: DAN SHERWOOD

PULSE RACER



IF YOU'RE AFTER A CAR TO GET YOUR BLOOD PUMPING, THIS 450BHP, STRIPPED AND CAGED NISSAN PULSAR IS JUST THE TOOL FOR THE JOB...



The eardrum-shattering explosions of the anti-lag system send two-foot long flames spitting out from the screaming front-bumper-exit exhaust system before the roar settles to a low rumble as the potent motor returns to idle.

The deep, visceral thrum reverberates around the curvatures of the brick arches that surround us overhead seeming to find the exact frequency to cause our ribcages to vibrate. It's a strange sensation, made all the more intrusive as the pungent smell of high-octane fuel that is being belched from the glowing exhaust tip fills our nostrils and the trembling innards of our punished lungs.

But just as we start to feel queasy as the oxygen levels are

slowly replaced by deadly carbon monoxide, the ignition key is flicked off and the whole assault on our senses meets an abrupt end.

Seconds later, after wiping the tears from our stinging eyes, a tall figure steps out of the driver's door of the menacing black Nissan Pulsar which is causing us so much discomfort, with a huge mischievous grin on his face.

28-year-old excavator operator Peter Delor is the owner and builder of this largely homebuilt road and track weapon, and as such, much like the deadly poison arrow frogs that are immune to their own poison, he seems practically impervious to his car's lifespan-reducing effects.

'You've got to love anti-lag,'

he says with a smirk. We nod in agreement, only half hearing the sentence as our ringing ears slowly adjust back to normal volume levels.

Peter has owned the potent Pulsar for just over a year now and, although he has grown accustomed to its brutal exhaust note, he's still left stunned at the performance that it is capable of after each stint behind the wheel.

It's running around 400bhp at the moment, but the engine and supporting mods are capable of putting out nearer 470bhp when fully mapped,' Peter explains. 'But even at just 400bhp, because of the four-wheel-drive system and the fact Pulsars are so light compared to the majority of more modern performance cars, it still really





'AS SOON AS I FLOORED IT ON THE TEST DRIVE, I WAS SOLD. IT WAS JUST SO FAST!'

shifts, that's for sure!

From the factory the Pulsar GTiR comes with a unique version of the 2.0-litre turbocharged SR20DET engine (coded 54C) and makes a heady 227bhp and 210lb ft of torque. To reach the level of power that Peter's Pulsar is putting out, there's been some serious work undertaken under the lightweight Knight Racer carbon-fibre vented bonnet.

When Peter purchased the car the previous owner had already started down the road to blistering performance by pulling the engine apart to fit a set of Arias forged pistons to the standard rods after beefing them up with a set of stronger ARP bolts. While the head was off the block, an uprated HKS

head gasket was also wisely installed along with a front-mounted intercooler and Garrett 2871R turbocharger.

I'd owned a Pulsar before this one, but had blown the gearbox up on it and had an expensive repair bill. I eventually sold it due to being a bit paranoid about it blowing up again,' laughs Peter. 'And that one was pretty much standard!' However, he still craved the boxy rarity, the lunatic power delivery and limpet-like grip that only a GTiR can deliver so it wasn't long before he gave into his craving and snapped this one up.

'Having a lot of the mods that I was planning already done was a real bonus,' Peter recalls. 'It was packing around

360bhp when I first saw it and as soon as I'd floored it on the test drive, I was sold. It was so much faster than my previous car and definitely worth the 400-mile round trip to go and see it! However, like many petrolheads before him, Peter soon found himself on the slippery slope of chasing even greater performance.

'At first I just refurbished the wheels and tidied up a few rough edges,' the Belper-based speed freak says. 'But after doing some research and talking to various members of the GTiR-motorsport-club forum, I decided that a bigger turbo was in order to make the most of the forged internals.'

Peter sourced the Garrett GT3071R that is on the car now

and fitted it himself along with a ported and flowed standard manifold and took it for mapping. Unfortunately, rather than the huge leap he was expecting, the session returned a disappointing 385bhp.

'The mapper explained that the induction pipe was way too restrictive and was holding the power back,' remembers Peter, 'so I changed it for a full three-inch inlet and put it back on the rollers.'

At 405bhp it was better, but still way off what Peter was hoping for, the mapper now suggesting the 2.5in exhaust was at fault and was causing the breathing bottleneck.

'I decided to just leave it at that for a while and just enjoy the car on a few trackdays.'



Peter says. 'But even that was short-lived when my clutch collapsed while lapping Donington Park.'

But rather than feel despondent, Peter chose this moment to be the car's rebirth and spent the next four months beaver away on the Pulsar in his garage, improving every aspect of the car before re-emerging with the brutal beast you see today.

'I started by dropping the engine and 'box and changed the clutch for a Competition Clutch Stage 4, six-paddle unit to better cope with the greater torque produced by the motor,' Peter recalls. 'I also decided to sort out the restrictive exhaust.'

Wanting to make sure no further restrictions held the

KNOW YOUR NISSANS
THERE WERE THREE DISTINCT MODELS OF THE PULSAR GTI-R SOLD TO THE GENERAL PUBLIC. THE RA WAS A LUXURY SPEC ROAD MODEL, WHICH CAME STANDARD WITH AIR CON, ELECTRIC WINDOWS AND MIRRORS, AND ABS. THE RB WAS A MORE FOCUSED RALLY HOMOLOGATION SPEC, WHICH WAS STRIPPED DOWN FOR MOTORSPORT USE. IT HAD MANUAL WINDOWS, NO AIR CON AND THE ABS WAS REMOVED, ALL OF WHICH HELPED TO REDUCE THE WEIGHT BY AROUND 30KG. IT ALSO FEATURED A CLOSE-RATIO GEARBOX AND A FRONT LIMITED SLIP DIFFERENTIAL. THE FINAL VERSION WAS OFFERED BY NISMO AS A COMPLETE CAR BASED ON THE RB FEATURING MANY NISMO RALLY OPTIONS SUCH AS SUSPENSION, LIMITED SLIP DIFFERENTIALS, SEATS, ROLL-OVER AND FOOT RESTS. ONLY 21 NISMO CARS WERE EVER PRODUCED





power back, Peter fabricated the bellowing three-inch system that exits out of the front bumper himself. Having an incredibly short run means not only is it extremely loud, but it is also extremely free-flowing.

'The next thing I sorted was the intercooler pipework,' he says, popping the vented carbon bonnet and pointing to the heat-wrapped section of pipework that runs across the bay in front of the red painted rocker cover. 'It was mainly silicone pipes before, and the run wasn't great, so again, myself and a friend brought the necessary aluminium pipes and fabricated a new shorter run including a TiAl 50mm blow off valve whilst we were at it!'

A Walbro 255lph fuel pump was also installed along with a

Z32 MAF sensor and a 2.0 Bar boost solenoid, all controlled via a standalone GEMS ECU with the all-important switchable anti-lag system that Peter so ably demonstrated earlier.

Moving on to the handling, Peter started the upgrades from the ground up with the matt black Rota Grid 2 wheels with grippy Toyo R888 semi-slick tyres that sit so purposefully at each corner courtesy of a set of BC Racing coilovers and a full four-wheel geometry set-up. Hiding behind the front six-spokers is a huge K-Sport big brake conversion with 356mm discs and 8-pot calipers – essential equipment when you have more than doubled your car's factory output.

'There was already a pair of awesome Cobra Daytona

recliners installed when I bought the car,' says Peter. 'But to really add to the race feel – not to mention increasing the safety of the car for trackdays – I removed the rear seats and fitted a full six-point Cusco rollcage and Takata harnesses. The battery was also relocated to the boot to improve the weight distribution.'

One of the problems that the owners of powerful four-wheel drive cars face is that the grip can soon overwhelm the transmission, especially with super-grippy track tyres on extra-wide wheels. And the Pulsar has never been a car known for having a bulletproof gearbox, with it often being the limiting factor for owners looking for big power builds – a fact Peter knows only too well!

**A RARE BREED
THE PULSAR GTIR, OR SUNNY GTIR
AS IT WAS BADGED ON UK
MODELS, WAS A HOMOLOGATION
SPECIAL PRODUCED BETWEEN 1990
AND 1994 IN ORDER TO ENTER THE
WRC UNDER GROUP A RULES AT
THAT TIME. PACKING A 227BHP
TURBOCHARGED 2.0-LITRE
SR20DET ENGINE AND ATTESA
ALL-WHEEL-DRIVE, THE GTIR HITS
SIXTY IN UNDER SIX SECONDS
AND CAN REACH A TOP SPEED OF
144MPH. THE BODY IS LARGELY
THE SAME AS THE STANDARD N14
THREE-DOOR MODEL, BUT IS DIS-
TINGUISHED BY THE LARGE REAR
WING AND BONNET SCOOP**

Because of this he has tried to pre-empt any issues by having the gears shot peened and put through a super finishing process to strengthen them.

'The shot peening is a process where the surface of the metal is impacted with tiny metal balls which create thousands of tiny dents. These



'I'VE TRIED TO DO AS MUCH OF THE BUILD AS POSSIBLE MYSELF AND HAVE LEARNT A LOT ALONG THE WAY'



ENGINE

2.0-litre, 4-cyl, 16v SR20DET, Arias forged pistons, standard rods with ARP bolts, HKS head gasket, 700cc injectors, flowed standard manifold, Forge intercooler with full custom aluminium pipework, TiAL 50mm blow off valve, standalone Gems ECU, Garrett GT3071R turbo, custom 3in inlet, custom 3in front bumper-exit exhaust, iridium spark plugs, cone filter with shortened induction pipework, Z32 MAF meter, 2.0 Bar boost solenoid, Walbro 255lph fuel pump

TRANSMISSION

Standard 5-speed gearbox with shot peened and super finished gears, Competition Clutch 6-paddle clutch and strengthened clutch fork

BRAKES

K-sport big brake kit with 356mm discs and 8-pot calipers and fast road pads (front), standard discs and calipers with EBC Yellow Stuff pads, braided lines all round (rear)

SUSPENSION

BC Racing street coilovers, SuperPro polybushes

WHEELS & TYRES

8x17in ET35 Rota Grid 2 wheels with 235/40/17 Toyo R888 semi-slick tyres

INTERIOR

Cobra Daytona bucket seats, Takata harnesses, deep-dish OMP steering wheel, Cusco 6-point rollcage, GReddy profec B Spec II boost controller and GReddy turbo timer, alloy gearknob, boost gauge in driver's side air vent

EXTERIOR

Full respray in Nissan black, Knight Racer carbon-fibre vented bonnet with bonnet raisers, headlight delete duct, quick-release front bumper, Renault Laguna front splitter, bumper cut out for intercooler and cold air inlet, clear indicators and side repeaters, relocated numberplate

THANKS:

Big thanks to my mates, Dan, Edd and Le, Bob Heywood at GTI-R-US for his advice, everyone on the GTI-R-motorsport-club forum for their help and of course Emma the brew wench!



dents enhance the fatigue strength of metal parts and helps avoid cracking, too, so it was the perfect process to try and ensure the Pulsar's gears could handle the power,' explains Peter. 'So far the 'box has held up, and it's taken a fair bit of stick, that's for sure. If it does ever give up the ghost, I think I'll have to go for a full Quaife setup, but the cost is pretty high.'

And the cost of the build is one area that Peter has tried to limit, although he stresses that he has done so without cutting corners or skimping on parts.

'I've tried to do as much of the build as possible myself or with the help of my mates,' he explains. 'The guys on the GTI-R-motorsport-club forum are really


knowledgeable and helpful and I've also had loads of advice from Bob Heywood at Pulsar specialist GTI-R-us in Southend-On-Sea in Essex.

Bob's been tuning and servicing Pulsars for over 10 years now and there's nothing he doesn't know about a GTI-R.'

The only areas that Peter didn't get his hands dirty on were the original engine rebuild – which was already done when he bought it – and the respray in factory Nissan black.

'I've learnt a lot along the way as I've built this car,' Peter says. 'Like the fact that, with tuning, it's the little things that can matter as much as the big ones. For example, the work we did to re-route and improve the flow of the

inlet, exhaust and intercooler piping really made noticeable differences to how the car drives and the way the power is delivered. They were only small changes in the scheme of things, but those small changes really added up.'

And when Peter gets the Pulsar back on the dyno to have the final big power mapping done that should be another tweak that adds up, and hopefully completes the puzzle. He's confident that it will reach the 470bhp figure he's predicted, but at the same time he won't be too disappointed if it doesn't. After all, there's not many better ways to get your pulse racing that a blast in a tuned Pulsar GTI-R, and Peter knows it! 

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LOVE TRIANGLE

CRAIG BAXTER'S RX-7 FUSES A VARIETY OF RARE AND UNIQUE STYLING TOUCHES WITH THE SORT OF ENGINE THAT COULD TAKE THE THING INTO LOW ORBIT. AND NOT ONLY THAT, BUT EVERY MILLIMETRE OF THE CAR IS SPOTLESS – IS THIS THE ULTIMATE STREET-DRIVEN FD?

WORDS: DANIEL BEVIS PICS: OLLIE WILDSMITH





Rotary engines are a mystery to many people. A lot of you out there will be well-versed in them, of course – the name's *Japanese Performance*, it's reasonable to assume that a fair percentage of you are Wankel-fanciers – but if you ask the average man on the street about how rotary engines work, as opposed to the more established four-stroke piston scenario, you'll most likely be greeted with a blank stare. Or a befuddled shrug, or a 'Please don't say "Wankel" in front of my kids'. Those little spinning triangles create swirling vortices of witchcraft that only Pythagoras can adequately explain.

For this reason, we need specialists. People who've spent enough time elbows-deep in rotary motors to really have a handle on the dark art of rotor tips, orbital revolution and eccentric shafts. And if you want to chew over the concept with a dude who really knows his stuff, you could do a lot worse than chat to Craig Baxter – he's the man behind this radical RX-7, and more significantly the brains behind Top Gear Stockport, who know more about these weird, high-revving, oil-slurping engines than you'd believe possible. So how did this all come about?

'We work on any type of vehicle, from classics to supercars and everything in between,' Craig explains. 'However, we specialise in rotary engines, and this is how our own RX-7 started, as we wanted to show the skillset we offer by using this Seven as a showcase. Now, breaking into this market has its difficulties due to it being quite a specialised area in the industry; it's very useful that I've owned rotaries for most of my driving life, as this has given me a pretty solid grounding. I set out to do things the TGS way, which is perfection

'IT'S HIT 176MPH ON THE AUTOBAHN AND LAPPED THE NURBURGRING IN 8:56'



TOP GEAR STOCKPORT

TGS HAVE BEEN INVOLVED IN SOME PRETTY OUTRAGEOUS BUILDS. 'WE HELP DRIVER ALEX LAW IN THE PRO BDC WITH HIS SUPER-LOW S14A 200SX,' SAYS CRAIG, 'AND WE HAVE ALSO JUST COMPLETED MANUFACTURING A SET OF HEADERS FOR A WELL-KNOWN RACE TEAM IN THE BDC - ALTHOUGH WHO THAT IS, I CANNOT TELL! ALSO, ANYONE INTO MAZDAS WILL KNOW JAMES WILLDAY; WE'VE RECENTLY FINISHED HIS NEW TURBO SETUP AND EXHAUST SYSTEM IN HIS ALL-TUBE CHASSIS MAZDA RX-8 DRAG CAR, AND WE WISH HIM ALL THE BEST IN HIS NEW CAR!'



above all else; it's not about just strapping a big turbo to an engine and saying 'that'll do'. We always go the extra mile to offer a finish that puts other tuners' styles to shame.'

Strong words indeed, and stirring stuff. You can see where the passion that flows through this shiny red Mazda originated from. And, from a purely selfish perspective, Craig's pretty lucky that his job is also his hobby, as having this vast pool of expertise and equipment has allowed him to nail together a pretty spanking RX-7.

'Yes, it certainly helps,' he agrees, with a mischievous smirk. 'The history is that TGS was started in 2007 by me and Andrew Smith; our main aim was to offer services in the Manchester area that weren't being offered at the time – services like custom fabrication, custom tuning and remapping, engine management installations, rollcage and chassis preparation... We also found that other custom exhaust shops at the time were only offering substandard MIG-welded systems with boxes pre-made from a large Chinese factory; our aim was and is still is to this day 'quality over quantity'. We build TIG-welded systems by hand, we manufacture our own silencers in-house, and we're one of only a few companies in the UK to offer systems in any bore size, whether you need a 5in drag system or a 4in turbo system...'

He's so passionate about his work that once you get him talking about it, the floodgates are irretrievably opened. So let's steer the discussion toward the subject matter at hand, shall we? As there's a rather seductive FD casually flexing its muscles for the hungry lens...

'Ah yes, when we found this example it was a bone-stock Type RB, which came in at under £2600 – a bit of a steal,' says Craig. 'It needed some work doing, but all the history was complete. And I wasn't worried about the work, as I had a few plans.' He's not kidding. It's been a long and involved process, but the amount of effort that's gone into the engine alone is frankly mind-boggling. Lift up that extravagantly vented bonnet and you'll find a smörgåsbord of shiny polished metal and smoothness, although the impressive engine bay aesthetics actually play second fiddle to the sheer might of engineering

scariness within. We're looking at a 13B that's been fully stripped down and rebuilt to futuro-cyborg spec by TGS, running a single turbo – a BorgWarner S366, no less – and all manner of race-bred trickery. There are race ports on both intake and exhaust, reground rotor housings with the rotors themselves custom-ground to Craig's own top-secret specs (he could tell you, but he'd have to kill you), massive injectors and a comprehensively reworked fuelling system. The upshot of all this, working in conjunction with methanol-water injection, standalone management and military-spec wiring among much else, is an expansive 560bhp. Which is more than enough to keep Craig entertained – it's hit 176mph on the autobahn, and lapped the 'Ring in 8:56, although he reckons that it could go faster in the right hands. Quality craftsmanship speaks for itself.

'There really weren't that many hurdles in putting the thing together,' he shrugs. 'We'll always find a solution to any problem that comes up, and I can honestly say we didn't have many. This isn't a car that's been fighting us.' All of this is good news for the evolution of the project, as unexpected setbacks can quell enthusiasm, and Craig's been able to revel in his deep-seated passion for JDM rotaries by scouring the globe for rare and unusual parts. Take the rear bumper, for example...

'It's a genuine RE Amemiya Super GReddy unit that I found on an online auction site,' he explains. 'It's got an integrated carbon-fibre diffuser along with the alternative tail-lights.' It also has, as you've probably spotted, a large central port that offers two key attributes: firstly, you can boast about your rotors – see, it's shaped like a rounded-off triangle – and secondly, it gave Craig the chance to build up a fresh new centre-exit exhaust system to replace the other custom system he'd built for it. Man, this guy loves building exhausts. 'From the midpipe it had no boxes at first, and it sounded nuts!' he laughs. 'I ended putting a large 8in-round silencer at the rear which made it 88db @3000rpm, which is a bit more sociable.' But, these things are all relative, aren't they?

Fans of aftermarket body addenda from Japanese tuners will have spotted that



Craig hasn't gone for the full RE Amemiya Super GReddy kit, just the tail. RE Amemiya has been perviving over rotaries since the mid-seventies (indeed, the 'RE' stands for 'Rotary Engine'), so it's an eminently appropriate look for the FD, but whereas the full-on Super GReddy kit gives the RX-7 an almost Porsche 911-like nose, Craig's opted to keep it all a bit more Mazda up front. There's a MazdaSpeed GTC front bumper (which incorporates a composite flat floor that neatly mirrors the carbon-fibre at the tail), and he's put a lot of hours and elbow grease into crafting that bespoke bonnet. An OEM-spec glassfibre hood was sourced from Concept 7, and no time was wasted in taking the cutting tools to the pristine new unit and hacking a vast hole in the leading edge, obsessively flexing, filling and smoothing until there was a nice angled ramp to the flat-mounted intercooler.

'Why?' smirks Craig. 'Because racecar.'

This relentless pursuit of power, fused with the sort of unique styling that's aimed squarely at aficionados and Mazda geeks, led to a very clear change in direction at this stage of the project. 'I was using an RX-8 as a daily driver by that point, and I was rather liking it, so that gave me the push to turn the RX-7 into a full-blown track car,' he recalls. With plenty of trackday experience and appearances at top-flight performance events like Ten of the Best, this seems like natural evolution, and he'd certainly built up a strong base for the task. So, that fancy footwork provided by the HKS Pro Circuit coilovers needed augmenting with some hardcore hardware to exercise the exquisite engine to its best advantage. With a K Sport big brake kit keeping everything honest (to devastating effect, in fact – the front calipers have eight

pistons!), the track-ready awesomeness went into a spiral: a full 12-point cage from Custom Cages and a brake bias pedal box – whose fill pots peep through the dashtop – were thrown into the mix, nodding on the way in to all the sound deadening that was on its way out. Form remained as important as function, so the stripped interior was treated to fresh paint while the doorcards have been replaced with brushed aluminium panels – lighter than stock, without the indignity of leaving the door internals exposed.

When Craig and his RX-7 emerged from the workshop, blinking in the light, the neighbouring units were treated to a sight pretty much as you're seeing now: an exquisitely detailed FD that enjoys both a show car finish and the cojones to cause more than a little mischief on track. He's ticking a few scene boxes, sure – swapping

ROTARY ENGINES

RATHER THAN THE MORE TRADITIONAL FORMAT OF HAVING RECIPROCATING PISTONS LAID OUT IN-LINE, IN A VEE, OR HORIZONTALLY-OPPOSED, A ROTARY ENGINE FEATURES A BIG TRIANGULAR ROTOR (OR TWO, OR THREE...) SPINNING INSIDE A CHAMBER. IT WORKS ON THE SAME FOUR-STROKE SYSTEM (INTAKE-COMPRESSION-COMBUSTION-EXHAUST, AKA SUCK-SQUEEZE-BANG-BLOW), BUT HAS THE ADVANTAGE THAT ALL THE MOVING PARTS ARE ALWAYS ROTATING THE SAME WAY, RATHER THAN VIOLENTLY CHANGING DIRECTION LIKE PISTONS DO. THIS MEANS SMOOTHNESS, WITH THE ADDED BONUSES OF SIMPLICITY AND COMPACTNESS. YOU CAN'T TREAT A ROTARY ENGINE EXACTLY LIKE A PISTON ENGINE, THOUGH – YOU'VE GOT TO KEEP AN EYE ON YOUR OIL LEVELS, YOUR IGNITION SYSTEM AND BE WARY OF WEAR TO YOUR ROTOR TIPS. AND DON'T EXPECT STELLAR FUEL CONSUMPTION... ALTHOUGH IF YOU'RE BUILDING A MOTOR LIKE CRAIG'S, THAT'S PROBABLY PRETTY LOW DOWN YOUR LIST OF PRIORITIES ANYWAY



his pearly-white three-spokes out for a set of Rota GTR-Ds, rocking the Big Groovy Wing – but this is no frivolous stance kid build: Craig's badass RX-7 has enough torque that it can actually ruck up the Tarmac beneath those broad Federals, while the vast turbo whistles like a camping-stove kettle and the centre-mounted 5in tailpipe rasps with the venom of a thousand wasps trapped in an oil drum. He's taken a sports car, maintained the silhouette, and squished a supercar in there. And that's something to be applauded.

He's far from done with it yet, either. 'You never know what the future will bring,' Craig reasons, with a twinkle in his eye, 'but I know one thing: if you love your rotary engines, then keep an eye on us. I'm cooking up something special for this car in the next year or so...'

I don't know about you, but I'm on the edge of my seat. What on Earth will this sorcerer of triangles come up with next? **UP**



ENGINE

TGS-built 13B-REW twin-rotor engine, large extended-intake race port, race exhaust port, 3mm Mazda OEM apex seals, custom solid Conner seals, Mazda stock side seals, all seals set to TGS clearances, TGS custom water seals, re-ground 13B rotor housings, custom-modified rotors to top-secret specs, Mazda Cosmo 13B-RE large-port intake manifold, Rotary Works 90mm single throttle body, MWI/TGS pre-turbo mechanical water methanol injection system (raising rate system with no pumps; boost-driven, active after 11psi), Injector Dynamics 2x1000cc primary injectors, 2x2200cc secondary injectors, stock Mazda in-tank lift pump into TGS fuel pot, Bosch 044 main pump twin-lined to both DM Motorsport fuel rails, Turbosmart 1200 fuel pressure regulator, Borg Warner S366 turbo, .91 a/r housing, 4' cold feed intake inc. pre-turbo water injectors, TGS long-runner manifold, Turbosmart Hypergate45, Turbosmart EBoost Street Boost controller, TGS 4in V-mount intercooler and custom composite lower intake system, Turbosmart Raceport BOV, TGS custom V-mount twin-pass radiator, TGS 3.5in full exhaust system inc. centre feed plumb back for wastegate, Adaptronic E440D standalone ECU, AEM direct fire IGN-1A race coils, custom MSD plug leads, AEM water injection flow meter, TGS military-spec engine harness, NGK R7420-11 spark plugs

TRANSMISSION

OS-Giken Super single plate clutch kit and flywheel, TGS strengthened power plant frame, TGS gearbox brace, TGS diff brace

BRAKES

K Sport 8-pot front calipers with 356mm discs, Mazda RS rear calipers and discs, OBP brake bias pedal box

SUSPENSION

HKS Pro Circuit coilovers, Powerflex poly bushes, fully seam-welded and lightened chassis

WHEELS & TYRES

9.5x18in Rota GTR-D wheels with 245/40/18 (front) and 255/35/18 (rear) Federal RSR tyres

INTERIOR

TGS-fitted 12-point FIA Custom Cages rollcage, TGS limited edition heated windscreen, OMP flat-bottom steering wheel and Momo quick-release boss, Lifeline FIA fire system, stripped of soundproofing, no heater, no OEM wiring

EXTERIOR

RE Amemiya Super GReddy rear bumper with carbon-fibre flat floor and rear diffuser, MazdaSpeed GTC front bumper with composite flat floor, stock Mazda side skirts, TGS custom V-mount bonnet, carbon-fibre rear spoiler

THANKS

'I would like to thank all my customers worldwide. Without your support none of this would be possible. Also, Elliot White from Turblown for selecting us to be their UK dealer and agent, and for also supplying us with the new engine management system from Adaptronic AU; TurboSmart AU for all the support from the start, Thermal Velocity heat management, Alex Law and his 200SX – we wish him all the best for this season, and last of all my TGS crew: Andrew Smith, Samantha Baxter, James Dowell, James White, Paul Pearson, Chris Banks, and Niall Lamb.' <https://instagram.com/craigtgs/> <http://bit.ly/TGSTuning>

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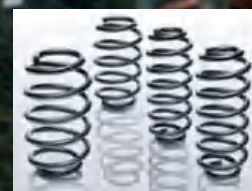
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HONDA INTEGRA TYPE-R
AND ITS OWNER, IN MORE
WAYS THAN ONE...

WORDS: DAN GOODYER PICS: DAN SHERWOOD



Tuning, modifying, customising...call it what you like, the aim is always the same; to push the boundaries, to create something unique. The results can be stunning but there are always compromises, especially for a car that is driven on the road. In the 'stance' scene looks are everything, so cars are slammed to the floor and comfort goes out the window. While drifters just want their hard work to go up in smoke, their welded differentials meaning the rear wheels skip and chirp when parking at the local supermarket or have to be

trailerred to events. In general, whenever you gain performance in one area you lose out in another.

However, the owner of this stunning Honda Integra Type-R doesn't think that way. 31-year-old Dave Crowe understands the argument but believes there is a solution. Without intending to, Dave has used his DC5 as a test-bed to come up with a magic combination of modifications that, he believes, gives the biggest performance gains with the minimum downsides. As Dave talks us through the mind-blowing number of parts that have been

attached to the DC5, he says: 'I don't understand people who just follow what's popular on a forum. People seem to believe there's only one perfect upgrade for each part, and just copy what the influential people say is best. It's important to do your research, but we all want different things from our cars, so ultimately the only opinion that counts is your own.'

So this is arguably the purest example of 'I built this for myself' you'll come across – and probably the fastest, most well-rounded and capable Integra on UK streets. That's a big claim, but one that we hope





you'll agree with.

Before we start discussing what makes this Type-R capable of harassing supercars, let's rewind to the moment Dave found it. He explains: 'I'd previously fallen in love with a black DC5 with BuddyClub bits on it, but I wasn't quite ready to buy at the time. I wanted to replace the turbo Micra I had been driving, and had just finished uni and started working in London. The choice was between an Audi S3 or a DC2 or DC5 Integra. Eventually I decided that for the type of roads and driving I enjoy, the DC5 would be the best fit. I sourced this one through a local car importer back in 2007 but, when it arrived, it wasn't as described...'

Normally this would be a bad thing, but in a way Dave got lucky. He wanted a completely stock DC5, however,

upon inspection it was clear it had been used for racing. 'There were holes where a rollcage was fitted and then removed before shipping, but it was in surprisingly good condition considering it had been on track, so I wasn't sure what to think,' says Dave. 'Then we started uncovering the upgrades, and I guess that's what pushed me into tuning a car that I might have otherwise left standard.'

Those upgrades included a paddle clutch, Spoon lower arms and a set of really aggressive brake pads. Perhaps the best surprise of all was that the gearbox had been equipped with a Cusco plate-type limited slip differential. This gave the front wheels lots of grip and meant the driving experience was very rewarding right out of the box. But would it be too hardcore for a street-

driven car?

Initially, Dave took his 'Teg to TGM Sport for a check-over. They carried out some servicing work and gave it a clean bill of health. Dave was impressed by their knowledge and professionalism, so over the next four years TGM Sport looked after the servicing and tuning of the car. Dave adds: 'I did all the NA mods first.'

At the height of its naturally-aspirated tune, Dave's DC5 put out 245bhp, which is impressive, considering he never opened up the engine. All the extra power was achieved by fitting breathing mods and then getting a decent tune written on the Hondata K-Pro ECU by Ed at Fusion Motorsport. By this time, Dave was deeply immersed in the Honda scene. He was swapping opinions and feedback on parts at meets and

**WHEELY BIG PROBLEM
DAVE HAS A WHEEL FETISH. HERE'S HIS CURRENT LINE-UP: 'THESE RAYS ARE MY LIGHTEST WHEELS. THEY USUALLY HAVE R8885 ON THEM, AND I USE THEM FOR ANY TRACK WORK. COMPARED TO MY OTHER WHEELS, THEY MAKE THE STEERING FEEL LIGHTER, MORE RESPONSIVE. MY REGULAR DAILY WHEELS ARE 9X17IN ROTA FIGHTERS WITH 225/45/17 TYRES. I ALSO STILL HAVE THE 7X17IN OE WHEELS, 9X17IN ET38 WORK EMOTION CR KAI (LITERALLY THE LAST SET EVER MADE), STAGGERED 8.5 AND 9.5X17IN RAYS CERUMO 2-PIECE WHEELS AND FINALLY A SET OF 7.5X17IN SSR INTEGRAL GT1S! ON THE ROAD I ALWAYS USE THE BRIDGESTONE POTENZA RE070 TYRES. THEY OFFER A LOT OF GRIP IN THE DRY AND STILL WORK IN THE WET, TOO.'**

on the forums. However, Dave is someone who would rather try something for himself than simply rely on the opinions of others. So, over time, that's exactly what he did.

Dave progressed through several different intake and exhaust setups, noting the





BRAKING, THE HABIT

'I STARTED DRIVING THE CAR ON THE RACE PADS THE CAR CAME WITH. THEY WERE FANTASTIC WITH SOME HEAT IN THEM BUT THEY WEREN'T LABELLED, SO I COULDN'T RE-ORDER THEM. WHEN THEY WORE OUT I PUT BREMBO DISCS AND PADS IN EXPECTING AN IMPROVEMENT BUT WAS REALLY DISAPPOINTED. THEN I WENT FOR MINTEX 1144 PADS AND OE CALIPERS, THAT WAS A GOOD SETUP EVENTUALLY THEY WORE OUT AND I DECIDED TO GO UP AGAIN, WITH A TGM SPORT UPGRADE. THEY GO ENDURANCE RACING IN THEIR OWN HONDAS, SO THEY KNOW WHAT WORKS. THEY COMBINED A PAIR OF BREMBO F50 CALIPERS WITH AP RACING DISCS, PLUS THE CAR ALREADY HAD BRAIDED LINES ON IT, WHICH MAKES A BIG IMPROVEMENT TO THE FEEL OF THE BRAKE PEDAL. I'M VERY HAPPY WITH THE TGM SPORT SETUP ON THE CAR NOW.'

'WHILST A SCREAMING NA WAS FUN, DAVE WANTED MORE'

different sounds and power outputs each one provided.

On the intake side he tried an A'PEXi short ram (that sounded 'amazing'), then the stock airbox with baffles removed and an Injen carbon-fibre scoop behind the front grille. He also experimented with an RBC inlet manifold from a different K-series engine, which has longer runners than the original PRC inlet manifold he's since re-fitted to the car. Incidentally, the current intake is a TDi North setup that features a K&N air filter mounted on a long tube that bends away from the engine to minimise the chances of sucking up hot air.

Returning to the NA days, on the exhaust side Dave went from a BuddyClub Pro Spec exhaust with DC Sports

manifold, to a Mugen twin-loop exhaust, followed by a Fujitsubo RM-01A. In total, five different exhausts have been on the car. Each time the map was adjusted to realise any gains. The bottom line? While it was fun to have a screaming NA engine, there wasn't a huge increase in performance. Not enough to satisfy Dave's thirst for tuning, which by now had been well and truly stimulated.

'With the NA tuning, the car always felt faster – because it was louder or sounded more aggressive, but in comparison with friends' cars it was only marginally faster than it was before. The next step was a 70mm throttle body, cams, maybe higher compression. In other words, a lot of money. The thing is, while I did want

more power I also wanted something a bit different, so I started looking for a new car to replace the Integra, but nothing seemed to tick all the boxes, and I realised I still really loved the 'Teg. That's when I met the guys at TDi North...

Notorious Honda tuners TDi North know a thing or two about making cars faster. For years they've created, tuned and supported the fastest Hondas in Time Attack and on the drag strip. So when Dave saw a post from them offering a development turbo conversion on the Honda Integra Type-R owners forum (www.itr-dc5.co.uk), he bunged some fuel in the DC5 and headed up there for a chat. When he arrived, TDi's Ben Smith took him for a spin in his K20 turbo

EG Civic. Dave was sold. 'That passenger ride was a game-changer for me,' he explains, 'it had so much power, it was a rocket!'

So a deal was struck. One thing we haven't told you yet is that Dave makes films. No, not that kind. By day he's shooting grown-up stuff about the financial sector, but on evenings and weekends Dave films cars, often uploading the content to

**AROUND THE BEND
THE RIDE QUALITY IN DAVE'S CAR IS EXCELLENT CONSIDERING HE'S REALLY IMPROVED THE HANDLING PERFORMANCE. AFTER TRYING EIBACH SPRINGS AND OE DAMPERS AND EVEN OHLINS COILOVERS PREVIOUSLY, DAVE FOUND HIS PERFECT SETUP WITH EIBACH COILOVERS AND CUSCO ANTI-ROLL BARS, THE LATTER DAVE RECKONS ARE AMONG THE BEST UPGRADES HE'S FITTED TO THE CAR. HIGH PRAISE INDEED!**





LOOKS CAN BE DECEIVING FOR PEOPLE WHO AREN'T DC5 ENTHUSIASTS, DAVE'S CAR MIGHT LOOK RELATIVELY STANDARD BUT IT'S NOT. HE LIKES THE OVERALL SHAPE, SO HAS TRIED TO BUILD ON IT RATHER THAN REDESIGN IT. THE BONNET IS ACTUALLY CARBON-FIBRE THAT DAVE HAS HAD PAINTED, AND CHECK OUT THE VENTED WIDE FRONT WINGS, TOO, THAT ALLOW CLEARANCE FOR THE CHUNKY R888S WHEN REQUIRED. ALL AROUND THE CAR THERE ARE SMALL TOUCHES, SUCH AS PAINTING THE STANCHIONS ON THE CARBON-FIBRE REAR WING IN CHAMPIONSHIP WHITE. IT'S A UNIFIED CONCEPT

his ReelMotion channel on YouTube. Look it up, there's vids of Dave's car on there and Ben's pocket rocket. Long story short, TDi North would use Dave's car to develop a turbo conversion for the DC5, while Dave would get himself a discount for filming it all and spreading the word. Job done. Everybody's happy.

That was three years ago. Dave skipped his Christmas party at work and drove the car to TDi, staying in a hotel for a week and filming the transformation. We're going to cut through the development process because that could fill a feature in its own right. The

bottom line is that the car made good power initially but was held back by the exhaust manifold. With the log manifold and chargecooler swapped for a sidewinder design manifold and large front-mounted intercooler, the engine made more power and stayed cooler, too. Dave adds: 'The change introduced a very small increase in lag but the top-end breathed much better – it roared in comparison.'

These days the engine makes 330bhp on low boost (7psi/0.5bar) and a potent 430bhp on high boost (14psi/1bar). With the close-ratio 'box, relatively light weight

and the grip provided by a set of Eibach coilovers and a Wavetrack helical LSD, this DC5 is a serious piece of machinery. So what's it like to drive?

Understandably, Dave was hesitant to let us drive it. Something about our right foot being too heavy! Anyway, he did let us sit behind the wheel before taking us for a spin. Opening the door and climbing inside, the first thing we notice is how low you sit. Dave has kept the distinctive red Recaro seats that wrap around your whole body, but has mounted the driver's seat on an HKS low rail that drops the seat two inches. So you sit in the car,

rather than on it.

Everything inside is relatively factory-looking. However, Dave has upgraded both the gear knob and steering wheel to a leather trimmed Personal Neo Grinta wheel. 'The only bits I've changed in here are the ones you touch and feel. I kept the original pedals, though, because I think they're perfectly good as they are.'

We swap seats and Dave fires up the engine. The exhaust note is deep but there are no other clues about the extra power under the bonnet. The idle is perfectly still, there's no vibration in the cabin. It's eerily like a factory DC5. Then Dave





TECHSPEC

ENGINE

2.0-litre, 4-cyl, 16v K20A, Wiseco pistons, Manley H-beam con-rods, Eibach dual valve-springs, OE Honda chain with uprated tensioner, Hondata K-Pro ECU mapped by TDi North, TDi North turbo conversion with a Precision Turbo 3231E mounted on a TDi North sidewinder manifold, TDi North 3in stainless steel downpipe and de-cat system, TIAL external wastegate with TDi North screamer pipe, TIAL bov, TDi North front-mounted intercooler and hard pipes, K&N air filter, Zircotec heat management coatings, K-Tuned fuel rail, Injector Dynamics 1000cc fuel injectors, Walbro in-tank fuel pump, Spoon engine cover, K-Tuned spark plug cover, NGK spark plugs, Spoon radiator and cap, Spoon low-temp thermostat, Spoon hoses, DEI reflective heat shielding, Hondata boost controller (with boost-by-gear enabled), Hondata 4bar map sensor

Power: Low boost 330bhp, High boost 430bhp

TRANSMISSION

OE 6-speed Y2M3 gearbox, Wavetrac LSD

SUSPENSION

BC Racing coilovers, Titan Motorsport anti-roll bars front and rear, SuperPro bushes all round

BRAKES

TGM Sport big brake kit including Brembo F50 calipers and AP Racing floating discs, OE rear Brembo calipers with uprated discs. Pagid RS pads all round, TGM Sport braided brake lines

WHEELS & TYRES

7.5x17in RAYS SE37 forged alloy wheels with 215/45/17 Toyo R888 (track) or Bridgestone Potenza RE070 (road) tyres

INTERIOR

OE Recaro seats, HKS low-mount seat rail on driver side, Personal Neo Grinta steering wheel, BuddyClub gearknob, Cusco 'dash dodger' rollcage, Defi boost gauge, Defi oil pressure gauge, Defi Link control unit, Pioneer iPod headunit, JVC amplifier, Alpine speakers

EXTERIOR

Ings front splitter, BuddyClub carbon-fibre bonnet painted Championship White, custom hot-air escape scuttle panel mod, J's Racing wide front fenders, Mugen rear lip, NRG Innovations carbon-fibre spoiler with stanchions painted Championship White

THANKS

Paul West, Neil Holden, Ben Smith and everyone at TDi North for transforming the car and going above and beyond. TGM Sport for the servicing, NA tuning and brake upgrade. JDMK family, especially Phil and Steve.

starts driving slowly as we look for a location with no traffic. On the way there the car behaves perfectly. The extra torque is immediately obvious. Even as Dave short-shifts at half-throttle, it just feels like a much larger engine under the bonnet.

When the road clears, Dave floors it. Even in low boost the car just takes off! The close-ratio 'box is perfect for keeping the engine spinning hard. Dave rows through a few gears and then backs off as he's already risking his licence. We mention how impressed we are with the car before asking what the switch on the dash does. Dave smiles.

'It's what Paul at TDi calls the "batshit crazy" button,' he replies, before pressing it. We're now in high-boost and the engine note has changed – angrier, coarser and deeper still. The extra pressure makes the whole experience even more exciting.'

Progress is now verging on alarming. However, for a front-

wheel drive car with over 400bhp, there's a noticeable lack of wheelspin. Dave explains: 'Paul has mapped the car to be as usable as possible. There's no point in having loads of horsepower if it's just going to spin the wheels. So he's mapped the engine to deliver linear power. In other words, it's got grunt everywhere but it isn't all or nothing like a low compression engine with a huge turbo. Part of this is the type of conversion, in that it's a high-compression engine with a sensibly-sized turbo. The other big part of it is the boost-by-gear setup.'

It turns out that Paul has mapped the car with different boost levels for each gear; low boost in the early gears to aid traction, building to big boost in the top gears when wheelspin is less likely. This makes such a huge difference to the way this car drives. We've been in lots of big-power front-wheel-drive cars that spin the wheels or pull

aggressively left and right, but this is as docile as a factory car whilst being much, much faster. It's very impressive.

As is the way it stops and corners. We're quickly running out of space to heap praise on Dave and his turbo'd 'Teg, but the thing to take away from this feature is the amount of research and development that's gone into this car. Dave's methodical approach and commitment to keep going has resulted in a car that has less flaws and yet is more capable than most modified Type-Rs we've seen. It retains the fundamental looks and character of the original car, and yet lifts it up to new levels of performance. And that takes some doing. And no compromises. **UP**

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'THE EXHAUST NOTE GETS ANGRIER'



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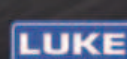
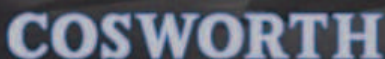
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BRIDE & VROOM!

KAROLIN CHAN'S SUPERB WIDE BODY EVO X IS THE RESULT OF HER HUSBAND'S INABILITY TO STOP TOYING WITH HER CARS – A PURSUIT THAT HASN'T ALWAYS BEEN QUITE SO WELL RECEIVED!

WORDS: DAN FURR. PICS: DAN SHERWOOD

It's fair to say that the unsung heroes of the modified motor scene are the long-suffering 'other halves' of those that spend their time tinkering with tuning. More often than not, these paragons of patience will be called upon to supply a seemingly endless stream of tea, unconditional support and the occasional spare set of hands when their partners are up to their elbows in oil and grease – all to be delivered without complaint and for very little in return!

There are, however, some benefits to being the spare part in a petrolhead's marriage to the world of mechanics. Take Leicestershire lady, Karolin Chan, for example. Her husband, Leon, might have spent his life toying with Japanese sports cars, but his position as head honcho at performance parts retailer, EP Racing, has enabled a veritable bounty of desirable tuning components to find its way onto her beloved Mitsubishi Lancer Evolution X FQ300.

'I should point out that I was quite clear when I told Leon that I didn't want him to fiddle with my Evo in any way whatsoever,' she sighs. 'I was happy to leave the car in a standard state of tune, primarily because my last few motors ended up wearing

ridiculous wheels and massive body kits!'

What's so bad about a loved one kitting-out your pride and joy with a trick set of rims and a spoiler or two? Well, quite a lot if you happen to be a mum trying not to stand out like a sore thumb when dropping the kids off at school. 'I used to own a Honda CR-X,' continues Karolin, 'I absolutely adored the car, but Leon bolted a massive exhaust system, huge wheels and a body kit onto it without warning! Other parents would see me pull up during the school run – exhaust blaring, wheels blinging – and immediately assume that I was some kind of hooligan! Needless to say, I told Leon to steer well clear of my Evo X,' she chuckles.

The Honda wasn't the only one of Karolin's cars to be unexpectedly treated to a 'husband-spec' makeover; her Evo X's predecessor was another mega Mitsubishi, albeit one that rolled in the form of a stock Evo VII until it magically sprouted a carbon-fibre lip, a carbon bonnet and massive wheels. 'Horrendous' is the word that she uses to describe its transformed state, and she takes the opportunity to remind us of the words that were directed at Leon as soon as the red road rocket that she's in charge of





today came into her possession. 'Don't even think about it. You're not going anywhere near it!'

Reluctantly, Leon agreed to leave well alone, although the time that he was investing in the expansion of EP Racing wouldn't have left him with much of a choice in the matter. Starting out in 2003 as a two-man operation (essentially a way for Leon and his business partner to supply their close circle of friends with imported Japanese tuning parts), the pair quickly moved into a 500 sq ft unit in the Chan's home

established in Tianhequ, Southern China.

Karolin had been studying for accountancy qualifications while Leon was busy building his empire, and it came as no surprise to friends and family when she was invited to join the company as its accounts manager. Of course, that didn't mean that she was instantly turned on by the thought of outlandish wings and carbon-fibre diffusers. 'Leon had a Nissan Skyline R34 GT-R to play with, and I was happy with my

in a situation where all-wheel drive transmission would have come into its own, and I immediately asked Leon to find me a car that could provide me with confidence in all weather conditions,' she says.

Shopping for a new ride is the stuff of dreams for those with petrol running through their veins, and Leon relished the opportunity to furnish his wife with a list of possible replacements for the Mazda. A narrowing-down of candidates produced a standoff between an Impreza and an Evo

in her sights, largely thanks to a pleasing test drive in a well-kept standard example. Instantly falling in love with the car, she instructed her spouse to source an FQ300 complete with a manual transmission.

Before long, a bright red tenth-gen Evo with just 15,000 miles to its name was sitting on the Chan family driveway. Karolin had found her perfect ride, and she even ensured that it got the pampering it deserved by buying herself a Nissan Elgrand to use as a weekday runaround. That

'THE WIDE KIT ADDS SO MUCH ROAD PRESENCE TO THE X'

town of Loughborough as demand for the firm's body kits and carbon-fibre parts increased beyond the realm of customers that Leon was on first name terms with. Today, there are four full-time members of staff working at EP Racing, not to mention a manufacturing arm of the business that has been

totally standard Mazda 6 which performed admirably as our family runabout,' she tells us. 'Unfortunately, I had an unnerving experience behind the wheel of the Mazda when the car lost traction in snow and ploughed into a parked vehicle. I knew enough about chassis configuration to realise that I was

VII, but a test drive of the Scooby proved to be unsatisfactory due to Karolin's petite five-foot-nothing stature. With her inability to see over the top of the Subaru's steering wheel, the Chan clan invested in the special edition Lancer.

Fast-forward a year, and Leon had taken the decision to work his magic on the car – much to Karolin's dismay! 'Once again, I was the focus of attention at the school gates each morning. Unsurprisingly, I quickly fell out of love with my VII, yet I didn't venture too far from the model when eyeing up its successor,' she recalls. Indeed, it was the mighty Evo X that she set firmly

said, three years spent keeping the Evo as a plaything saw it in danger of becoming supplementary to requirements, and its owner isn't afraid to admit that she was beginning to lose interest. Yes, dear reader, this was like waving a red rag to a bull as far as Leon was concerned; what better way to reinvigorate Karolin's interest in the car than with a series of unplanned cosmetic and mechanical updates?!

At this point, you'd be forgiven for thinking that Leon was in danger of finding himself as the recipient of a request for divorce. Thankfully, he managed to avoid marital mayhem by equipping

A DAY AT THE RACES

EP RACING HAS BECOME ONE OF THE UK'S FASTEST GROWING RETAILERS OF PERFORMANCE AND STYLING PARTS, WITH MORE THAN THIRTY MANUFACTURERS FROM THE FAR EAST SENDING THEIR WARES TO LOUGHBOROUGH FOR SALE IN THE UK. ALL JAPANESE VEHICLES ARE CATERED FOR, AND LEON IS ESPECIALLY PROUD OF THE QUALITY OF THE PRODUCTS THAT HE SELLS. 'EACH AND EVERY COMPONENT HAS BEEN MANUFACTURED TO AN INCREDIBLY HIGH STANDARD, AND IT IS THAT WHICH HAS PROVED TO BE THE DRIVING FORCE BEHIND THE LONG TERM TRADE RELATIONSHIPS I HAVE WITH MY CUSTOMERS,' HE SAYS. EP RACING CARRIES HUGE QUANTITIES OF STOCK, AND THE FIRM'S LATEST CATALOGUE CAN BE EXPLORED BY VISITING WWW.EPRACING.CO.UK



Karolin's Evo with an awesome VA-Style wide arch body kit. Comprising approximately thirty pieces (including a front bumper, 30mm-wide wing and 60mm-wide rear quarter extensions, side skirts, diffusers and lips) with an impressive number of genuine carbon-fibre parts to match, the lightweight kit utterly transformed the appearance of the previously-standard X into an aggressive fast road racer – much to Mrs Chan's delight!

'At first, I wondered what was inside the three giant boxes that were delivered to the office,' she

says. 'I asked Leon, who told me that it was the new body kit for my car, and that a carbon-fibre bonnet and boot lid, door mirror covers and an accompanying vortex generator were on their way! I was horrified, but he showed me a catalogue picture of an Evo similar to my own dressed in the same gear and I knew that he was onto a winner this time around,' she adds.

The kit and car were expertly fused together by the lads at Loughborough bodyshop, Dog House Details. Meanwhile, Leon took a surprising approach when

THE POWER OF TEN

THE EVO X GETS A FAIR BIT OF STICK FROM LANCER FANS (POSSIBLY BECAUSE OF A RANGE OF WELL DOCUMENTED ELECTRICAL COMPLAINTS THAT THE MODEL IS KNOWN TO SUFFER FROM), BUT THE FACT THAT IT MIGHT BE THE LAST LAIRY LANCER TO ROLL OFF OF MITSUBISHI'S PRODUCTION LINE IS INCREDIBLY SOBERING. LUCKY WE FORGET MITSUBISHI SPOKESWOMAN, NAMIE KOKETSU, ISSUED A PRESS RELEASE BACK IN 2014 STATING THAT 'MITSUBISHI MOTORS DOES NOT HAVE ANY PLANS TO DESIGN A SUCCESSOR TO THE CURRENT EVOLUTION CONCEPT OF A HIGH-PERFORMANCE FOUR-WHEEL DRIVE GASOLINE-POWERED SEDAN.' THIS CONFIRMS FEARS THAT THE MANUFACTURER IS WITHDRAWING FROM THE PERFORMANCE CAR ARENA IN ORDER TO CONCENTRATE ON ITS ELECTRIC VEHICLE PROGRAMME, ALTHOUGH WE ARE OFFERED A GLIMMER OF HOPE AS NAMIE SAYS THAT THE COMPANY IS EXPLORING THE POSSIBILITY OF A POTENT PRODUCT LINE THAT WILL INCORPORATE THE NEW TECHNOLOGY PERHAPS THE EVOLUTION WILL LIVE UP TO ITS NAME AFTER ALL!!

it came to determining how low the car should sit upon its return to the family fold. 'He ran around town, measuring the height of

every single speed bump that we knew of,' explains Karolin. 'His rationale for such odd behaviour was that the car's carbon-fibre



TECHSPEC

ENGINE

2.0-litre, 4-cyl, 16v 4B11T MIVEC turbo, custom map on stock ECU, Injen hard pipe induction kit, Injen top intercooler pipe, D1 Spec radiator cap and grounding kit, EP Racing carbon-fibre fuse box cover and cooling panel, HKS stainless steel exhaust system

PERFORMANCE

350bhp, 345lb ft torque (estimated)

TRANSMISSION

Factory five-speed manual gearbox, standard clutch and flywheel

SUSPENSION

BC Racing coilovers, 40mm lowered ride height

BRAKES

Factory Brembo four-piston (front) and two-piston (rear) calipers with 350mm (front) and 330mm (rear) Performance Friction discs and Brembo pads

WHEELS & TYRES

10.5x19in ET15 Work D9R wheels with 255/35/19 tyres, Rays valve caps, D1 Spec red lightweight wheel nuts

EXTERIOR

EP Racing VA-Style wide body kit (comprising front bumper, carbon-fibre front diffuser, four-piece canards, 40mm wider front wings, carbon-fibre wing extensions, side skirts, carbon-fibre side skirt extensions, 60mm wider rear wings), EP Racing carbon-fibre rear bumper diffuser, EP Racing VA-Style carbon-fibre rear diffuser with carbon-fibre Voltex extension, EP Racing carbon-fibre bonnet with VA-Style vents, EP Racing carbon-fibre boot lid, EP Racing carbon-fibre vortex generator, EP Racing carbon-fibre door mirror covers

INTERIOR

Factory Recaro upholstery, D1 Spec 'Neo Chrome' gearknob, D1 Spec 60mm boost gauge, factory ICE, booster seat

THANKS

Leon (my husband and the boss at EP Racing!), Neil and Rich at Dog House Details for the paint work, Aaron Horobin for all his help with the car, and to Kenny Lam at Promax Auto for the arch and wheel work



WHAT THE FQ?


THE FQ-300 EDITION OF THE TENTH-GENERATION LANCER EVOLUTION IS A UKDM MODEL RATED AT 300HP (AT 6500RPM) WITH A MATCHING VALUE OF LB PER FT OF TORQUE (AT 3500RPM). MORE OFTEN THAN NOT, IT IS THIS VERSION OF THE EVO X THAT CROPS UP FOR SALE ON THE USED CAR MARKET, UNLIKE THE MIGHTY FQ-440-MR - A 440HP FROST WHITE BEAST RELEASED IN 2014 WITH A LIMITED PRODUCTION RUN OF JUST FORTY-NINE EXAMPLES AND PRICED AT FIFTY GRAND. NICE!

lower lip could be easily ripped off if it came into contact with a sleeping policeman. Knowing the height of the tallest traffic calming device in town would enable him to wind down the ride height of the car to a point where it could clear anything in its path. That's actually pretty cool!' she beams.

BC Racing coilovers have since been installed, dropping the Evo's chassis by around 40mm. Work D9R 19-inchers wrapped in fresh rubber are also in position in each corner, with the car's factory

Brembos visible through the thin multi-spokes of the rare rims. Elsewhere, a light remap has pushed the FQ300's power figure to an estimated 350bhp, with assistance coming from an Injen induction kit, uprated intercooler pipework and an HKS stainless steel exhaust system. Oh, and there's yet more carbon-fibre detailing in the form of an EP Racing cooling panel and a fuse box cover made out of the wicked black weave.

Unlike her previous changed

chariots, Karolin is thrilled to bits with the way her Evo X looks, its revised handling abilities and its extra poke. 'I celebrated my first drive in the car by buying myself a new booster seat!' she smiles. We're not sure that this particular addition will encourage the release of any trapped ponies, but we're pleased to hear that Leon has finally hit the nail on the head as far as messing with his missus' motors is concerned. Well, that is until we discover that he wants to try out some new performance upgrades and further bodywork alterations on the car. Perhaps now is the time to suggest that he quits while he's ahead?! 





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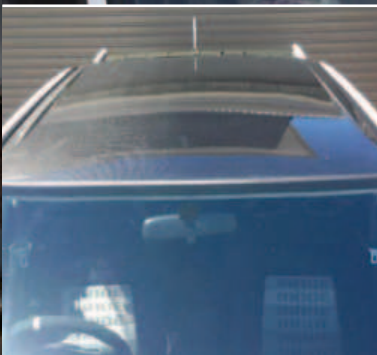
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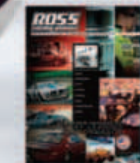
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GAME OF CLONES

FAKE, COPY OR REPLICAS TUNING PARTS, WE'VE ALL SEEN THEM, BUT ASIDE FROM THE PRICE, WHAT REALLY ARE THE DIFFERENCES? AND COULD THESE BARGAIN BITS REALLY BE TOO GOOD TO BE TRUE? JP FINDS OUT...

Non-genuine tuning parts have become incredibly commonplace in the Japanese car scene in recent years, and while it's rare to see anyone openly supporting them, they're often tuning fans' dirty little secret; they know they have them fitted, but they don't like to admit it...

There are a huge amount of stories, both good and bad, about these kind of parts, including some that are simply old wives' tales and just not true. Also, some 'copy' brands have become so big that they've become respected names in their own right, so what is the reality here?

Well, if we had to sum it up in one paragraph, it would be that things are a real mixed bag, and while price and brand don't assure quality, there's certainly big risks in buying non-genuine parts unless you know exactly what you're looking at as, what may seem a bargain at first glance, may soon turn into an expensive nightmare. Read on to find out why...

SILICONE HOSES

While some copy parts are commonly avoided, the risks of cheap silicone hoses are often ignored, usually as people presume that 'it's just a hose', and because cheap eBay ones look almost identical to big name ones, they decide there's no difference.

Well, we hate to break it to you, but buying cheap silicone hoses can be one of the biggest mistakes you can make in the world of replica parts...



WHY?

Silicone is an expensive material – cheap copy hoses may look nice and shiny in a picture, but the problem with far-eastern hoses is that the silicone material is 'cut' with fillers and bulking materials to make it go further and keep the costs down. As a result the hose is not made from pure silicone, it will age and perish more quickly, and then fail to withstand the pressure and higher temperatures of your tuned engine. UK hose specialists Samco use only European Automotive grade silicone, tested to the latest OEM standards, and they do not cut their material down at all – it's pure silicone all the way through.

While hoses seem a relatively simple thing, practically every conceivable factor in the manufacture of silicone hoses become a potential, and indeed quite common, problem when buying cheaper hoses to try and save a little money.

First up, it is worth mentioning the costs here, as while these random non-brand hoses certainly are cheaper, the cost of hoses even from Samco, the world leader in silicone hoses, a company which supplies hoses to the world's top race teams, isn't actually very high in the grand scheme of car modification costs. Is saving maybe £100 over the real deal really worth the hassle of an inferior product? We'd say no.

So what are the issues? How hard is it to make decent hoses, really? Well, as it happens, surprisingly hard.

A big issue with cheap hoses can be the simple fact that they're not that strong, as we found out when we visited Samco HQ's in-house lab and tested their hoses against cheaper blue ones we bought off eBay. See the results in the panel, far right.

Another frustrating factor can be the fitment of poorer quality hoses, too, especially with direct replacement kits. Having to struggle to force hoses on, or having to cut and modify them just to get them to fit, soon becomes so much work you wish you'd paid a little extra for the genuine article. Samco develop all their hoses using original OEM templates, and often with OEM manufacturers and race teams worldwide, meaning they can ensure a precise fitment with ease.



On many kits a silicone hose isn't just silicone either, as Samco add a wire reinforced helix on hoses that are susceptible to being sucked shut on tuned engines, such as the Subaru turbo inlet pipe used on the famous RCM Gobstopper. Unfortunately it's common to see cheaper alternatives without the strengthening, making them useless on tuned cars under pressure. On specialist hoses, where other pipes connect to them, including coolant hoses with bleed nipples, the metal inserts used are often poorly bonded to the lower priced hoses, and regularly come without the correct lips on the end, creating boost leaks. The aluminium metal pieces used by Samco are fully bonded, and in some instances built directly into the hose at the manufacturing stage, eliminating such failures.

VERDICT

Buying a cheap unproven silicone hose kit versus Formula One quality hoses only saves you a tiny percentage of the overall cost of tuning your car, so we'd say it's really not worth the risk.

TOP TUNING GEAR BUYING TIPS

RATHER THAN RELYING ON TRUST, HOPE, OR YOUR LUCKY PANTS TO NOT GET RIPPED OFF WHEN BUYING TUNING PARTS, FOLLOW OUR TOP TIPS ON GETTING THE BEST BITS FOR YOUR MONEY...

1. DON'T RUSH INTO IT

IT'S ALL TOO EASY TO SEE A PART LOOKING GREAT IN PICS AND INSTANTLY CLICK 'BUY', DESPITE IN REALITY THE PART BEING PRETTY POOR. ALWAYS TAKE YOUR TIME AND RESEARCH ANY PART YOU LIKE THE LOOK OF, AS CHANCES ARE YOU'RE NOT THE FIRST PERSON TO TRY IT, AND EVEN IF YOU ARE, TRY TO LOOK AT IT LOGICALLY AND DECIDE IF IT'S LIKELY TO BE AS GOOD AS ITS CLAIMED TO BE

2. IF IT SOUNDS TOO GOOD TO BE TRUE, IT PROBABLY IS

WHILE UNFORTUNATELY THE PHRASE 'YOU GET WHAT YOU PAY FOR' ISN'T ALWAYS TRUE – AS THERE'S A LOT OF OVER-PRICED JUNK OUT THERE – IF SOMETHING IS BIZARRELY CHEAP, IT'S LIKELY IT'S EITHER A FAKE OR IT'S NOT AS GOOD AS CLAIMED. BUYER BEWARE!

3. BUY FROM EXPERIENCE, NOT FROM OPINIONS

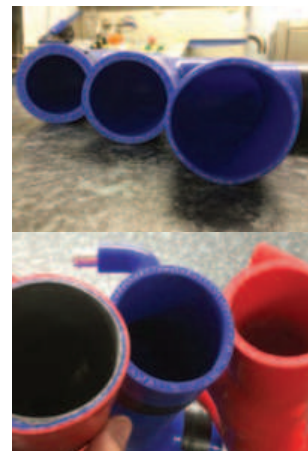
THE INTERNET IS A WONDERFUL PLACE TO GAIN KNOWLEDGE BUT, UNFORTUNATELY, FOR EVERY PERSON ABLE TO GIVE YOU INFORMATION GAINED FROM FIRST HAND EXPERIENCE, THERE ARE TWENTY MORE WHO WILL LOUDLY TELL YOU FIFTH HAND INFORMATION THEY HEARD ELSEWHERE ON THE INTERNET, USUALLY ABOUT A PRODUCT THEY'VE NEVER USED IN THEIR ENTIRE LIVES. BECAUSE OF THIS, WHEN RESEARCHING A PRODUCT, FIND OUT WHO YOU'RE LISTENING TO, AS IT COULD TURN OUT TO BE A FIFTEEN-YEAR-OLD KID WITH A MOUNTAIN BIKE RATHER THAN AN EXPERIENCED TUNER...

4. DON'T BELIEVE THE HYPE!

DON'T RELY ON A COMPANY TELLING YOU THEIR PRODUCT IS GOOD, THEY'RE NOT GOING TO ADMIT IT'S RUBBISH, ARE THEY? LET THE PERFORMANCE DO THE TALKING VIA DYNO GRAPHS, PERFORMANCE TIMES, AND OTHER PEOPLE'S EXPERIENCE OF THIS PART. EVEN IF IT'S A PART THAT SO FAR IS UNPROVEN, IF IT COMES FROM A COMPANY WITH AN ESTABLISHED HISTORY OF GOOD PARTS, IT'S LIKELY THIS ONE WILL BE, TOO

THE TEST

We supplied two different brands of cheaper eBay-bought hoses and tested them against equivalent Samco hoses for burst strength and leakage and these were the shocking results...



BURST TEST

The brand new lower priced eBay versions burst at 3.05bar and 6.05bar respectively, while the same 2in elbow made by Samco in the UK was still going strong at 17.2bar! And it's not all down to hose thickness, either, which can often be a poor indication of strength, as while thin hoses certainly aren't as strong, poorly made thick ones can be just as bad, as a common issue found with cheaper hoses is the bonding between the various layers. Pressure and heat can often make the layers delaminate after a very short time, meaning no matter how thick a hose is, it can leak and burst. In our test, although the thicker hose didn't burst, the supplied clip couldn't withstand the pressure and popped off.



LEAK TEST

To check the hoses' resistance to leakage, they are placed in a water bath and pressurised with air, which is seen as bubbles if there is a leak. On inspection, the eBay hoses were seen to have a visible seam of thread running through the centre, which would likely cause a leak. Samco hoses would be instantly rejected if such a defect were seen. In the test the Samcos held strong, however, at just 2.5 bar, the eBay hoses were leaking air from the fabric between the layers. Air was entering the seam of thread and getting between the layers of silicone and exiting via the ends. This would cause a leak in a car coolant system, too, or a boost leak if used in a pressurised air system.



TURBOCHARGERS

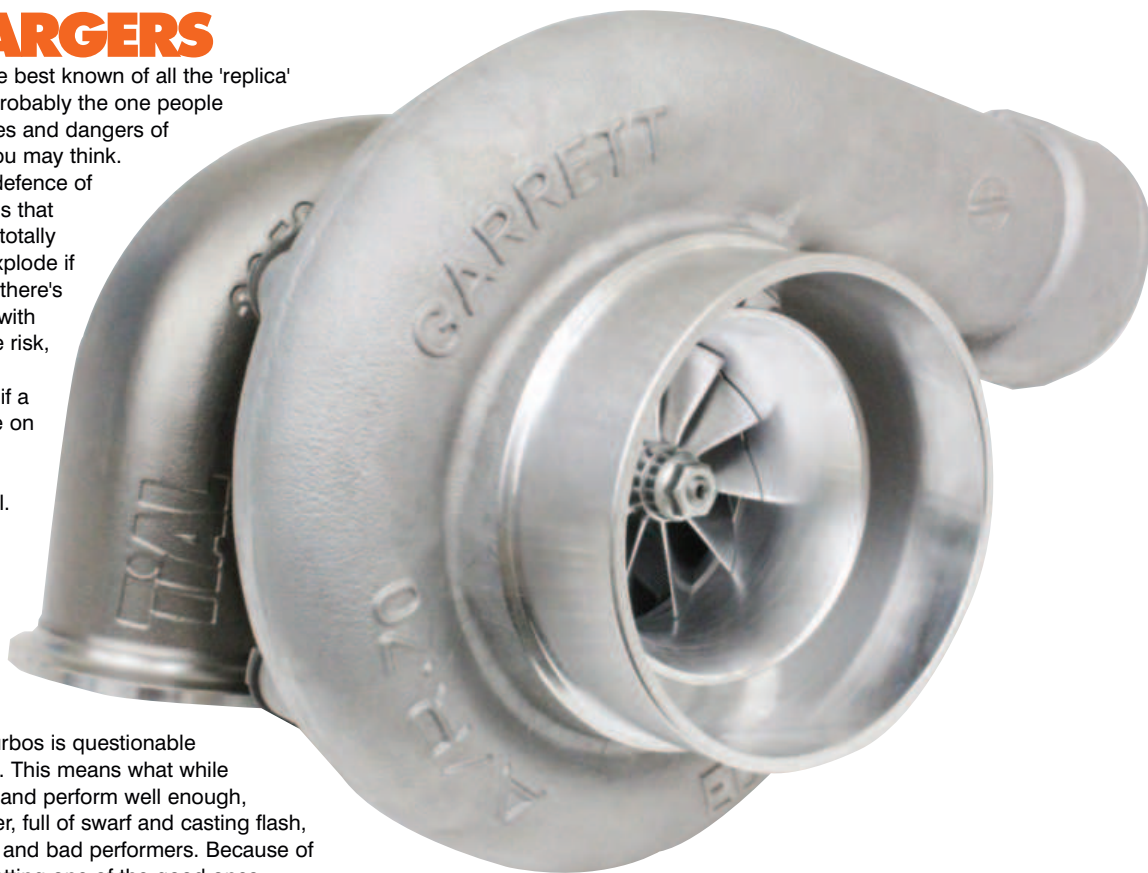
Chinese turbos are probably the best known of all the 'replica' tuning parts in existence, and probably the one people are most wary of, but the realities and dangers of them are more complex than you may think.

First up, unusually in slight defence of these cheap turbos, is the myths that they're held together with glue, totally unbalanced and will instantly explode if used, are just that, myths, BUT there's a huge amount of other issues with them that make them a massive risk, and rarely worth considering.

Secondly, despite the myth, if a turbocharger has a brand name on it you recognise, Garrett, BorgWarner, Holset, and so on, it's almost certainly the real deal. Fake turbochargers actually branded as real ones are almost, it not totally, non-existent, as the companies who make the real ones have very active legal departments who make sure this doesn't happen!

The main issue with these turbos is questionable build quality and quality control. This means that while some seem to be perfectly fine and perform well enough, others can be badly put together, full of swarf and casting flash, and therefore hugely unreliable and bad performers. Because of this it's a lottery that you'll be getting one of the good ones.

While we've yet to see proof of the myth that they're ever unbalanced, we've seen many turbos with issues related to the lubrication of the core and poor turbine metallurgy, both of which are likely to damage the turbo quicker than a badly balanced unit will anyway.

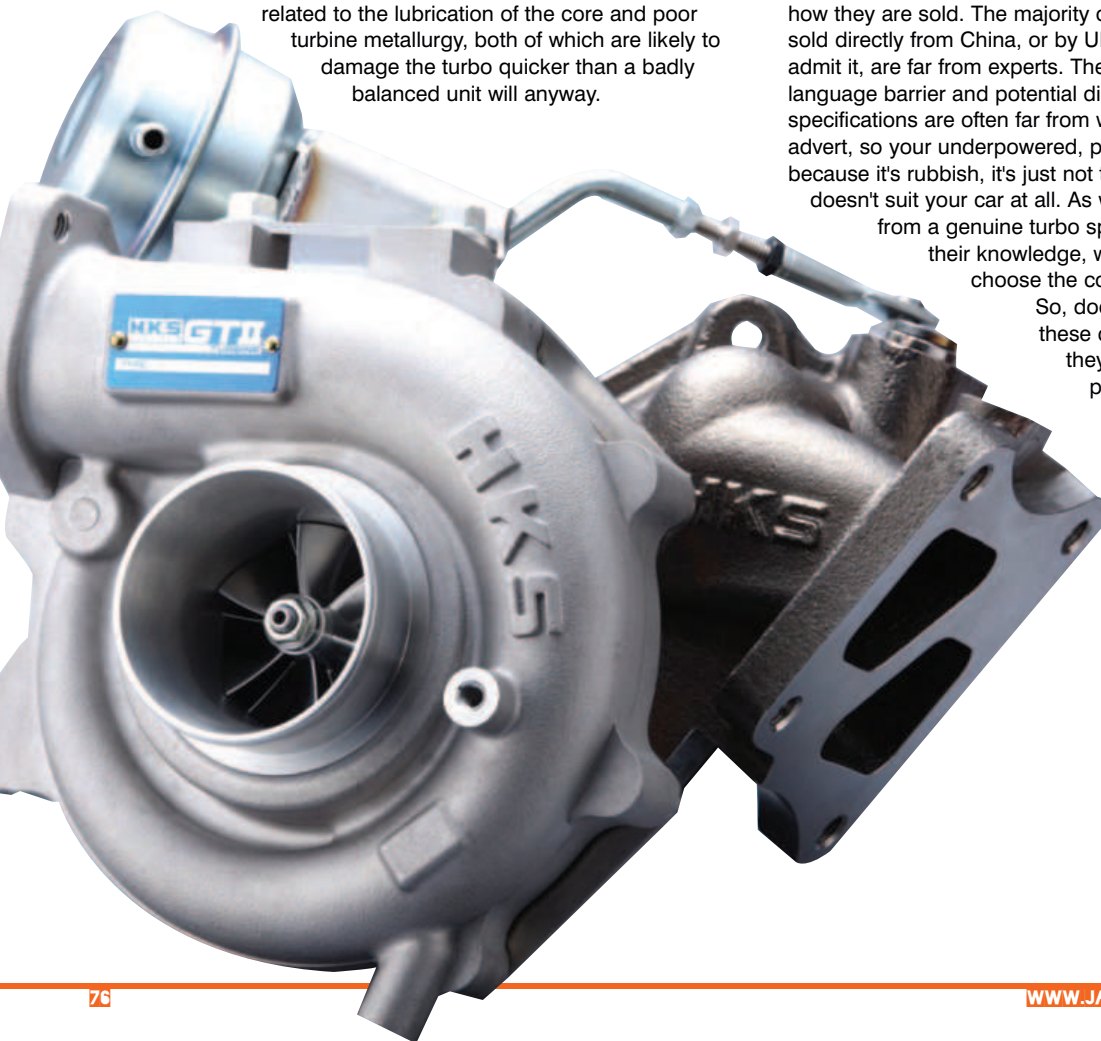


Another huge issue isn't a problem with the turbos themselves, but how they are sold. The majority of these cheap turbos are either sold directly from China, or by UK resellers who, while they won't admit it, are far from experts. The issues here are a mixture of the language barrier and potential dishonesty, meaning turbo specifications are often far from what are actually listed in the advert, so your underpowered, poor-spooling turbo may not be because it's rubbish, it's just not the spec you thought it was, and doesn't suit your car at all. As well as the product itself, buying from a genuine turbo specialist means you're paying for their knowledge, which can be invaluable for you to choose the correct unit for your car.

So, does anyone have success with these cheap turbos? Well, yes, while they can never truly compete with the performance of top big brand turbos, we've seen cars run 8 sec quarters and push out over 1000bhp with them, but they're always stripped down, checked, and cleaned out before being put into use, and bought and used by someone who knew exactly what they were getting and didn't trust the dubious specs and power figures often claimed by sellers of these units.

VERDICT

A minefield, and if you don't know exactly what you're getting and have the ability to strip and inspect it, just like in a minefield, expect something to blow up sooner or later...



WASTEGATES AND BLOW OFF VALVES

While the majority of the parts mentioned in this feature could be called non-genuine or copies, wastegates and blow off valves are in some cases actually true fakes. This means they are actually branded as the real thing, even with original looking packaging; to the extent of 'Made in the USA' printed on inferior quality Asian-made copies!

Due to the widespread nature of fakes of many brands, we'd highly recommend only buying yours from an official dealer, as even up close it can be very difficult to tell the difference in some items.

The issue with these items, both non-brand and the blatant fakes, are mostly build quality related. The most common issue is leaks, which often aren't noticeable without direct testing, and will have a massively adverse effect on your engine's performance.

Just like turbos, many people have had success with these copies by stripping them back down to their base components, removing casting marks and swarf, properly lubricating the moving parts, and carefully re-assembling them to the correct spec to seal properly. But once you've done that you've spent a lot of time and effort, and you're still left with the worry that something else will go wrong, so it's really not worth it...

VERDICT

Just because it's got the brand name, don't assume it's the real deal! Be careful out there and buy from reputable sources.



BUCKET SEATS AND HARNESSES

Another one where items are branded with incredible detail to look like the real thing is seats, but the issue here is that these are safety items, and the real difference could be between life and death. Seat companies such as Cobra have all their reclining seats TUV tested for safety and their motorsport seats are tested by the FIA.

Each seat is crash tested to simulate an absolute worst-case scenario accident and its effect is measured on a crash test dummy. Legal regulations require the seats to endure a 20g rear impact followed by a 15g lateral impact and, finally, another rear impact of 10g.

If any defects are found the seat will fail. To be on the safe side Cobra goes even further with these tests to make sure the safety of their customers is paramount. No human body would be able to survive the tests they carry out.

Fake Bride, Cobra and even Recaro seats have been doing the rounds for a few years now, as have fake Takata harnesses, and on the whole they're very accomplished copies indeed, taking a well trained eye to see the difference, but on something that's meant to protect you in a crash, is that enough for you?

While we've never seen any reports to say these items are dangerous in a crash, that certainly doesn't mean they're not, and when the buyers of these items do so because of the cool brand, can you live with the knowledge you're just faking it with a cheap copy if your life could depend on it?

VERDICT

Would you risk your life with fake safety equipment just to have a trendy logo in your car? We wouldn't.





ALLOY WHEELS

The issue of 'fake' wheels is never ending, and is often a flawed argument, as what people often call the original wheel is often a copy of another wheel itself from years gone by; as there's only a certain amount of good looking wheel styles in the world.

That being said, there's no denying a great many wheels take 'heavy influence' in their style from other popular wheels, but does that make them poor, dangerous or simply just unoriginal?

While there have been a few thinly disguised fakes, RAYS wheels being cheap imitations of RAYS for example, and there's no doubt some wheels are stronger and lighter than others, the myth that certain wheels are heavy or weak is on the whole simply not true.

Big name expensive wheels are indeed usually lighter and stronger than their cheaper replica counterparts, but compared to OEM wheels they're still usually much lighter and just as good quality, and thankfully regulations seem to have prevented truly weak and dangerous wheels from ever reaching the production line and, more importantly, the road.

For most, the biggest issue with wheels that 'take influence' from the style of other famous wheels is the fact the hardcore wheel fans turn their nose up in disgust at them, even though most people have no idea that they're copying anything in the first place.

VERDICT

For the best of the best, you have to go for the real thing. But similar wheel styles are a fact of automotive life. You pay your money, you take your choice.

EXHAUST MANIFOLDS

While minor fitment issues and rust from poor quality stainless steel plagues 'cheap' exhaust systems, they tend to have less complaints than most components, but complex tubular exhaust manifolds are another story entirely.

As pretty and tempting as they may be, a complex tubular exhaust manifold costing under £200 should set alarm bells ringing due to it being hard to understand how you can make that part so cheaply, especially due to how labour intensive it is to build one, and still make a profit. And the answer is, generally, they're not very good.

The overall design is usually fine as they tend to be blatant rip-offs of big name items, but despite the good looks, the metal can be thin and the welds poor; they can crack quite easily, and the interior finish is often pretty terrible and far from smooth. It doesn't stop there, either, as fitment is often far from perfect, which is not ideal as most manifolds fit in very tight spaces. Also, due to the design, the flanges often warp after a little hard use, which means removing the manifold and getting the faces machined flat, and can also create snapped exhaust studs in the head, which can be a real pain to remove...

VERDICT

While some choose to just deal with the problems due to the very low price, a truly good manifold built by a proven expert is money well spent...



OTHER PARTS TO LOOK OUT FOR...

CAST ALLOY SUMPS: THESE HAVE BEEN KNOWN TO BE POROUS, CREATING OIL LEAKS
BIG BRAKE KITS: SURPRISINGLY GOOD AS LONG AS YOU CHANGE THE PADS TO BIG NAME ONES, AS THE ONES THAT COME WITH THE KITS TEND TO BE USELESS

COILOVERS: THEY GO LOW, AND THEY ARE SAFE ENOUGH, BUT THE RIDE AND HANDLING QUALITY IS FAR FROM GREAT

CLUTCHES: A MIXED BAG WITH TYPICAL QUALITY CONTROL ISSUES, SO WHILE SOME ARE FINE, MANY CAN FAIL EXTREMELY QUICKLY

FUEL PRESSURE REGULATORS: THEY'RE MEANT TO RISE AND FALL 1:1 WITH BOOST PRESSURE AND VACUUM, BUT MANY DON'T AND THERE ARE A HUGE NUMBER OF BRANDED FAKES OUT THERE TOO

GAUGES: THERE CAN BE HUGE ISSUES WITH THE ACCURACY OF CHEAP GAUGES
STEERING WHEELS: CHEAP STEERING WHEELS ARE MADE FROM INFERIOR METAL AND CAN BEND AND BREAK EASILY, WHICH IS EXTREMELY DANGEROUS BOTH ON THE ROAD AND TRACK



samcosport.com

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Ollie Clark // Roger Clark Motorsport

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Performance Silicone Hose Kits

SamcoSport hoses are developed, tested and trusted by the world's best teams and drivers. This means you can rely on SamcoSport to perform every time you drive and with a lifetime warranty, it is a true fit & forget product. Each kit is designed and developed by an in-house team of engineers who use only original factory parts as guides to ensure design accuracy and fitment.



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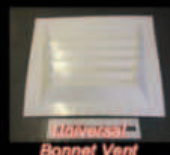
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Front Bumpers



R33GTR Full Rear
Quarters for GTS



R35 GT-R
TRD Spoilers



Mugen GT86
Bonnet Vent



R35 GT5 S2
Nismo Carbon Bonnet



R35 GT-R Ducktail
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JAPSTUFF

BRINGING YOU THE HOTTEST NEW PRODUCTS ON THE JAPANESE TUNING SCENE

Every month we bring you the latest and greatest products on the Japanese tuning scene. We always showcase a 'Red Hot' product at the front of the section and also highlight the 'must-have'

products at either end of the budgetary scale.

This way you can decide whether to save your pennies to afford the 'Big Spender' or simply splash a little spare

pocket change on the more affordable 'Chump Change' product. We hope you enjoy the section but, as usual, if there's anything you think we can do better, then please let us know. Until then...enjoy!

REDHOT PRODUCT

NEW TOYO TIRES COMPETITION SLICK AND TRACKDAY OFFERING

A double whammy of good news comes from Toyo Towers this month, with the Japanese tyre giant's track-focussed Proxes RS1 slicks and road-legal R888R semi-slicks landing on UK shores!

First up, the RS1 is a full-slick competition tyre that copes well with massive heat cycles generated during punishing track work. Excellent dry braking capability and stability at speed is matched by a stiff steel-wire reinforced sidewall to provide responsive handling while minimising lap times in dry weather conditions. The RS1 will be eligible for many 'non control' series and championships, making it a cost-effective way for competitors to achieve slick grip levels without breaking the bank. Available sizes are already listed as 195/570/R15 and 205/580/R15, with 235/620/R17 arriving later in the year.

Meanwhile, the brand new Proxes R888R is one of only a handful of all-weather semi-slick designs that can be used on the road, and we're sure that it will be a big seller for Toyo (don't forget, many track tyres produced after 1st November 2014 are no longer road legal in the UK) thanks to increased dry cornering, fast warm-up times and a wide centre rib that enables precise steering response. Initial sizes are listed as 195/50/R15 and 225/40/R18, but the R888 will also be available to buy as a soft compound – perfect for hill climb and/or sprint racers, providing longer lasting and more consistent performances. Visit Toyo's website for further information regarding its impressive range of high-performance tyres.

Contact: www.toyo.co.uk

Price: POA





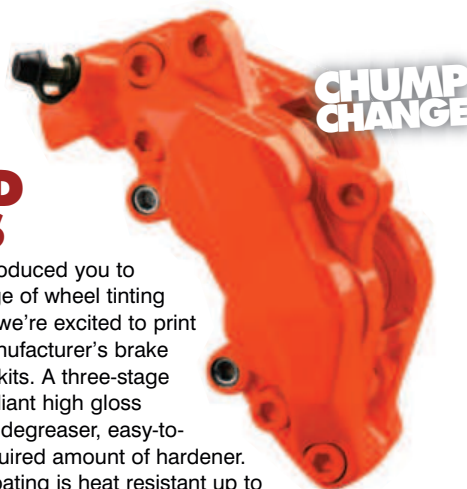
RACEGLAZE 'HYBRID BLUE' WAX

British car care company, Raceglaze, has bolstered its catalogue of detailing products with an exciting new wax that blends a high 40% concentration of pure white carnauba wax fused with long chain polymers sourced from other waxes and refined paraffin. The resulting 'Hybrid Blue' produces a satisfyingly rich gloss with remarkable durability, it has a higher melting point than most other premium grade waxes, and it exhibits excellent resistance to oxidising agents, negative atmospheric conditions and airborne chemical attack, it is claimed. Hybrid Blue is part of a new generation of waxes aimed at demanding, hardcore detailing enthusiasts, and it combines the depth and warm gloss of a wax with the extended durability of polymers. The best of both worlds. And it's blue.

Price: 100ml tub: £33.00, 200ml tub: £55.00

Contact: www.raceglaze.co.uk or call 01780 749449

FOLIATEC BRAKE CALIPER PAINT AND LACQUERS



A few issues back we introduced you to Foliatic's impressive range of wheel tinting sprays. This time around we're excited to print details of the German manufacturer's brake caliper paint and lacquer kits. A three-stage system that delivers a brilliant high gloss finish, each kit includes a degreaser, easy-to-prepare paint and the required amount of hardener. Once dry, the coloured coating is heat resistant up to 300°C and remains highly resistant to road fallout and brake dust. A huge selection of colours is available to choose from (gloss black, gold, turquoise, yellow and various neons are just some of the options available), and an application kit containing the necessary working materials (gloves, steel brush, paintbrush and spatula) to treat four calipers is supplied with each purchase. Need any more convincing? Watch the video at Foliatic's YouTube channel:

<https://www.youtube.com/watch?v=6yhXPC00-Ys>

Price: £27.99

Contact: Available to buy online from www.foliatic.co.uk or www.demon-tweeks.co.uk



ITG MAXOGEN INDUCTION KIT FOR EP3 CIVIC TYPE R

One of the first modifications that any self respecting Honda owner will want to carry out on their EP3 Civic Type R is to replace the factory airbox with an alternative that can let the potent K20 motor breathe more effectively and free up some extra ponies. But while doing away with the restrictive airbox may improve the inlet airflow and the aural excitement of the car, there is always the risk that a filter element open to the bay could suffer from sucking in the hot air from the engine, reducing its effectiveness and lowering any potential gains. This is why UK filtration experts ITG have developed their Maxogen induction kit for the EP3.

The Maxogen kit fits onto the stock inlet pipework and comes with a bespoke carbon fibre airbox, which shields an oiled foam cone filter from the hot engine bay to improve performance. The filter itself benefits from the company's triple foam technology that is said to enhance filtration and flow properties over conventional foam. A ribbed cold air feed is also supplied with the kit to ensure only cold, dense air reaches the filter to provide maximum power gains.

In testing ITG claims to have seen a 10 degree reduction in air temperature, plus a 13bhp peak increase in power and up to 12lb ft of torque between 3-4000rpm, which is exactly

where you need it most on the Type R.

Luckily, Integra DC5 owners can also benefit from the same kit.

Price: £394.80

Contact: www.itgairfilters.com or call 02476 305 386



TURBO DYNAMICS BORGWARNER EFR TURBOCHARGERS

Turbo Dynamics is the official UK distributor of BorgWarner's Performance EFR (Engineered For Racing) turbochargers – powerful units that have gained a reputation for performance, durability and dependability in the most demanding of motorsport environments.

Available to purchase in a range of specifications with horsepower capabilities of between 250bhp and 1000bhp per turbo, BorgWarner EFRs are the first choice for many professional racing teams (each and every car competing in this year's Indianapolis 500 was packing an EFR turbocharger) and an ever-increasing number of sports car manufacturers alike. Visit the Turbo Dynamics website to view the full range of EFR turbos, prices and key information that will help you to choose the right snail-shaped component for your pride and joy.

Price: From £1334.04

Contact: www.turbodynamics.co.uk or call 01202 487497



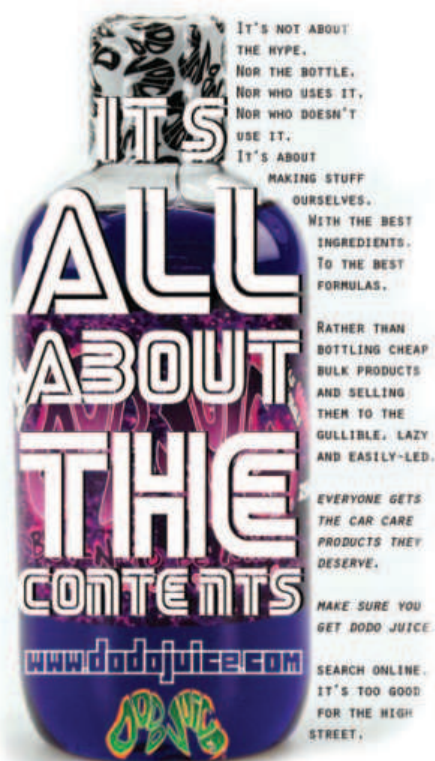
COBRA SPORT EXHAUST SYSTEM FOR HONDA CIVIC FN2 TYPE R

With Honda's latest Civic Type R hogging the headlines, it was only right that we reminded readers of the potential waiting to be unleashed from standard examples of the new arrival's naturally aspirated predecessor, the FN2 Type R. And what better way to highlight scope for improvement over the outgoing model's factory specification than with a mention of Cobra Sport's recently released FN2 cat-back exhaust system?!

This CNC mandrel bent, 2.5in tube and precision TIG welded exhaust is hand-finished and makes use of 304 grade stainless steel throughout. All Cobra Sport products are sold with a lifetime guarantee, and the option of a non-resonated system allows for a superb bark from the rear end of your feisty FN2 Type R. Point your peepers towards the Cobra Sport demonstration video on YouTube: <https://www.youtube.com/watch?v=vdigfgYUquM>

Price: Resonated system: £618.20, non-resonated: £595.10

Contact: www.cobrasport.com or call 0114 244 7123



LITCHFIELD 'LM' QUAIFE FRONT DIFFERENTIAL FOR NISSAN R35 GT-R

Respected Gloucestershire tuning outfit, Litchfield, has announced the availability of the legendary ATB helical front limited-slip differential for the Nissan R35 GT-R. Optimised by Litchfield and built by transmission experts, Quaife, this all-new 'LM' unit automatically biases torque with a constantly varying degree to the wheel with traction – a feature that massively reduces inside wheel slip. Replacing the GT-R's front diff is a major job, and it takes Litchfield's experienced technicians around ten hours to complete the swap. Fortunately, R35 owners looking to purchase this exciting drivetrain upgrade can call upon the firm's team when it comes to spanner-wielding duties, although the diff is available to buy direct from the Litchfield parts department if you fancy having a go yourself! Gulp!

Price: Diff only: £954, fitted in situ:

£2050.12, fitted with engine already removed: £1426.12

Contact:

www.litchfieldmotors.co.uk or call 01684 850999



STUDIO 448 APPAREL

Studio 448 sells high-quality clothing featuring unique designs inspired by the modified motor scene. The firm's hoodies, t-shirts, sweaters and headwear have been spotted decorating many of those in attendance at the recent summer shows, and lady-in-charge, Lauren Penfold, tells us that a number of new designs are about to land at the company's online store. iPhone wraps and stickers also make up a large part of the brand's portfolio, and in case you were trying to decode the meaning of 'Studio 448', let us enlighten you:

4+4=8, and the Japanese consider eight to be a particularly lucky number. So now you know!

Price: T-shirts from £13.99, hoodies from £32.99

Contact: www.studio448.co.uk or www.facebook.com/studio448



BORLA UNEQUAL LENGTH EXHAUST MANIFOLDS FOR TOYOTA GT86/SUBARU BRZ



The vast majority of discerning sports car enthusiasts are in agreement that the Toyota GT86/Subaru BRZ is a fantastic car, but that it's let down by a lack of meaty exhaust note. Derby-based performance parts retailer, Tarmac Sportz, concurs, and the company is now offering Borla unequal length stainless steel exhaust manifolds that are sure to introduce a burble to the proceedings! Carefully engineered exhaust runners that have been precision CNC-machined and mandrel bent are key to this aural extravaganza; exhaust gas pulses from each port arrive at the collector at different times, resulting in a distinctive boxer burble.

Additionally, when paired with other Borla products, the efficiency of these manifolds will smooth out the FA20 engine's torque curve and deliver extra power, particularly in the lower rev range. Better still, big noise and big power is yours for just £595 including delivery!

Price: £595

Contact: www.tarmacsportz.co.uk or call 01332 602247

ROTA 'RECCE' 17IN 10-SPOKE WHEELS

We love a good rim (oi, get your mind out of the gutter!), and they don't come much better than Rota's new Recce design; a lightweight, ten-spoke available in a range of fitments suitable for Japanese cars (including Mazda MX-5s, Honda Civic EKs etc.), the seventeen-inchers boast a unique look thanks to what Rota refers to as its 'Turbo Fan' outer ring. Colour options include white, silver and bronze with four-stud, five-stud and various offsets available to choose from. The Recce is priced at just £660 for a set of four wheels, and a full list of fitments is available to view at the Rare Rims website.

Price: £165 per wheel, £660 per set

Contact: www.rarerims.co.uk or call 01363 777007



ULTRA RACING FRONT STRUT BRACE FOR HONDA CIVIC EP3

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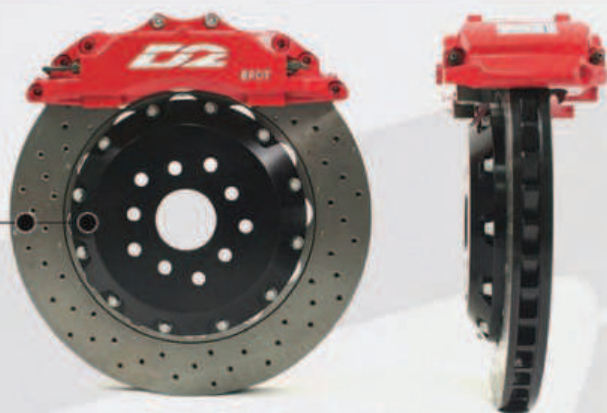




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PROJECT TYPE R

OPEN WIDE AND SAY 'R'

A NEW PROJECT SCREAMS INTO THE JP GARAGE. AND WITH BIG PLANS AFOOT TO TURN IT INTO A FAST ROAD RIDE THAT CAN ALSO CUT IT AT THE TRACK, IT'S GOING TO BE ONE TO KEEP AN EYE ON. BUT FIRST, A FULL HEALTH CHECK IS IN ORDER...

Let us introduce you to the newest member of the *Japanese Performance* garage. Project Type R is a 2003 Honda Civic EP3 Type R that fills the Red-H-shaped void that was missing from our Garage pages. I've long been a fan of Hondas and have always been envious at the loyal following that they attract and the genuine love that is felt for the

temple of VTEC. So when it came time to invest in a new ride to act as a daily driver, photography hack and occasional trackday toy, the Civic's mix of practicality, reliability, raw talent and massive potential for tuning made it an obvious candidate. The icing on the cake was that you can now pick up decent examples of standard EP3 Type

Rs from as little as £2500. Looking online and at local dealers I spotted the Milano red EP3 tucked away amidst a host of supercars on a garage forecourt. It stood out like a sore thumb at Aylesbury Street Motors in Bletchley, sitting among such exotics as Audi R8s, Porsche 911s and Lamborghini Gallardos, and I felt that it needed a new home.

So after a quick test drive and some bartering, the deal was done and I was driving home in my first Type R!

With 95k miles on the clock it's pretty low mileage, but it has seen some abuse. The panels are straight but have definitely been painted before – quite poorly in places – and all the standard wheels are kerbed. The interior is slightly



EUROSPEC'S COMPREHENSIVE 60-POINT INSPECTION UNCOVERED A FEW MINOR ISSUES THAT NEEDED SORTING SUCH AS AN OIL LEAK AND COOLANT CHANGE



PUTTING THE TYPE R ON THE DYNO SHOWED IT WAS RUNNING A LITTLE RICH – LIKELY AN UNDERPERFORMING INDUCTION KIT – BUT STILL MADE 192BHP

worn but everything seems to work as it should with the exception of the air con which, after trying unsuccessfully to get a re-gas at Knight Racer in Milton Keynes, turns out has a leak and won't hold the gas. The previous owner also tried their hand at tuning with a cheap looking, and doubtless poor performing, induction kit in the engine bay and a custom exhaust system with sports cat and Sportex dronebox, which tends to drone at motorway speeds.

But all things considered, I felt that this was a good purchase as there was nothing obvious that couldn't be fixed. However, to ensure my peace of mind I booked the car into EuroSpec in Guildford for a full 60-point health check and a quick blast on their in-house Dyno

Dynamics rolling road to make sure everything was how it should be.

The guys at EuroSpec have serious form when it comes to tuning Hondas so I knew if they said it was sound, I could rest easy. It would also be a great time to pick their brains about future tuning work, too!

Once down at their Guildford HQ, the guys gave the Civic a real going over, checking everything from the engine and fluids to the suspension and braking system. And the result? Well, with the exception of needing a coolant change and sorting a few small oil leaks, it turns out it's pretty much bob on! So on to the dyno!

Strapping the Civic to the dyno, EuroSpec bossman Ben Hartley got behind the wheel and warmed the motor

before seeing what she's got. After three runs, the average figure was a pokey 192bhp – only 5bhp down on factory after 12 years' hard use is not bad – especially as the cheap induction kit is likely to be restricting power, too.

All in all I'm pretty happy with my hot Honda, and after seeking advice from Ben, I have some seriously exciting plans ahead. I just can't wait to get started! – *Dan, Editor*

THANKS & CONTACTS

Adrian Flux
www.adrianflux.co.uk
 0800 369 8590

EuroSpec
www.euro-spec2000.co.uk
 01483 234879

Knight Racer
www.knightracer.com
 01908 379118

QUOTE ME HAPPY!



Bagging a new motor always has the

downside of having to once again sort out your insurance. It can be a painful process at times, especially if you haven't budgeted for any increase in premium that may come if you have climbed up the performance ladder a few rungs. But it needn't be such a struggle as there are a host of good specialist brokers out there that can ease your pain.

With years of experience of insuring performance and modified cars, Adrian Flux were at the top of our list so we gave them a call.

The helpful and knowledgeable broker took us through our options and we explained that the car had an aftermarket exhaust and induction kit which needed to be taken into account for the quote, but which would be getting replaced as the project progressed, along with other mods in the future.

Flux are used to dealing with tuned cars and generally only increase premiums for performance enhancing mods. In the end we came to a premium that we were happy with, which included all current mods declared.

As the project gets more tuning parts added we will also be updating our policy and will let you know the kind of loadings that each modification will bring and how it will affect your pocket, because at the end of the day, it's no good budgeting to buy an upgrade if you can't afford the increase in your premium.



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WORDS & PICS: PAUL COWLAND

PROJECT WHITE STUFF THE LIGHT FANTASTIC

THEY'VE BEEN ON THERE FROM THE START, BUT PROJECT WHITE STUFF'S LAZER LAMPS DRIVING LIGHTS ARE GETTING THEIR FIRST WORKOUT!

Lazer Lamps is an all-British firm born out of one lighting engineer's desire to create the most effective motorsport and automotive leisure lighting in the world. That was Ben Russell-Smith, and after years of creating bewilderingly clever LED lighting solutions for all manner of top-end OEMs, he decided to lock himself in his

R&D lab and create a light that was bright enough, durable enough and low enough in mass to go straight onto the shopping lists of factory teams like Bentley and Aston Martin for endurance racing and Ford's M-Sport operation for its WRC campaign. Put simply, these lights give you a high quality 'white' light, just where you

need it, making night-time driving more akin to hooning around in daylight.

I'll be honest with you – while I have always admired their chunky good looks, visually beefing up the front of the STI – I haven't really been able to drive the car enough when they really come into their own – during the darker hours.

So far, nearly all of my seat time in this accomplished cross-country machine has been during daylight, so the whole USP of Lazer Lamps has been lost on me up until now. That was all to change one fateful evening on a 2am blast across one of the UK's best driving roads; the Llanberis Pass.

Normally, this is a great time to be on the limit in a 340bhp turbocharged car. Loads of cool, dense air to keep the blower on song, coupled with a complete lack of traffic to allow



DISCRETE, TASTEFUL AND BLOODY BRIGHT. THE LAZER LAMPS FITTED TO PROJECT WHITE STUFF MAKE A LITERAL NIGHT AND DAY DIFFERENCE



WHEN DRIVING AT NIGHT, THE FURTHER YOU CAN SEE, THE FASTER YOU CAN DRIVE, MEANING THESE LIGHTS ARE WORTH AT LEAST 10BHP!

for unimpeded progress. On this road, that's a blissful combination, but this time around, with the ability to keep my main beams on – and therefore bring the Lazer Lamps into play, I had something of a driving epiphany. For the first time ever at night, I could see every detail of both verges in pin-sharp detail. Allied to this, my range of vision was significantly extended, allowing me to foresee hazards – as well as the road orientation – many seconds before I have been able to before on main beams alone. The effect was akin to driving in daylight, hugely increasing my confidence to push on a little bit.

I quickly noticed that I was able to make safe and controlled progress much more quickly than ever before. It makes a lot of sense when you think about it; for even the most talented of drivers, you can only

ever pedal as fast as you can see. That's why even mental rallying types bedeck the front of their chosen steeds with more candlepower than the Eddystone Lighthouse on full beam. When you can really see where you are heading, chances are you'll feel a lot happier piling at it at full tilt...

So how do they achieve this kind of power from such small units? Using the rallyists as our yard-stick, we can all remember the awesome site of racks of huge dinner-plate sized lamp units on sideways pedalled Group B icons as they slithered through '80s night stages, can't we? The downside to that old technology was the massive increase in frontal area, undoing any carefully calculated aero work that the designers had drawn in, and that's before you start factoring in the heat of filament lights, the huge current draw they need –

meaning a larger alternator and greater engine drag – their significant weight, or the fragility of the lights themselves and the fine, hot, burning wire within them. By comparison the hardy LEDs of the Lazer Lamps, the unit's unbreakable polycarbonate lenses and the ingenious cooling and reflector technology housed within the smart, fully waterproof alloy casing mean that I'm getting a whole lot more light than my rallying heroes ever did, but without the penalties of weight, drag, fragility or current draw. A bit of a win-win, really!

The lights on my STI are the ST4 versions, which have been fully certified for road use, making them plod and MOT friendly. If you fancy a set with build in DRLs, then you'll want the ingenious RS range, in either 4 or 8 main LED flavours. In either case, these can be mounted freely, or built into a

custom grille kit as with the Subaru. Lazer Lamps are adding to their bespoke grille range all the time, but engineering firms like ZunSport can also fabricate up one-offs if you fancy the factory look on a rarer machine.

If you enjoy night driving, you should perhaps think about putting a decent set of LED driving lights a little higher up your shopping list. It doesn't matter how big your turbo, your tyres or your talent may be. In each case, you can only ever exploit what your confidence – and vision – allows you to. And believe me, if you ever find yourself on the A4086 at 2 o'clock in the morning, I guarantee you'll agree it was the best money that you ever spent!

THANKS & CONTACTS

www.subaru.co.uk
www.lazerlamps.com



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PROJECT LEXUS

With the summer show season well under way it was time to get the Rotas back on the IS200. They've been freshly refurbished by our favourite wheel bods, Premier Wheel Repairs in Redhill. They look wicked and give the car such an aggressive look, especially with the stretched Yokos!

CONTACTS

Premier Wheel Repairs:

www.premierwheelrepairs.com

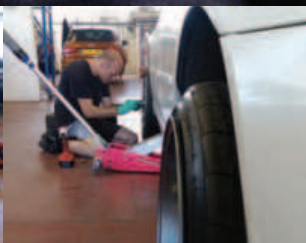
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RareRims:

www.rarerims.co.uk



PROJECT WRX ALL THE GEAR...

While the guys at Kamikaze crack on with the engine rebuild we've been busy sourcing new tuning parts.

As we're upgrading the gearbox to a 2007 five-speed Hawkeye system we needed to take care of the clutch. The original gearbox has been running a Competition Clutch with no problems so it seemed logical to go with a similar one for the new build.

As we're upping the power we opted for a Stage 3 Competition Clutch with lightweight flywheel. Ordering was made simple using the guys at EuroSpec (Competition

Clutch main dealers).

Of course we're gonna need some slippery stuff to keep it all working nicely, so partnered the clutch with some Millers Oils fully synthetic motorsport transmission oil.

CONTACTS

EuroSpec

www.euro-spec2000.co.uk

Competition Clutch

competitionclutch.com

Advanced Automotives

www.advancedautomotives.co.uk

Kamikaze Racing

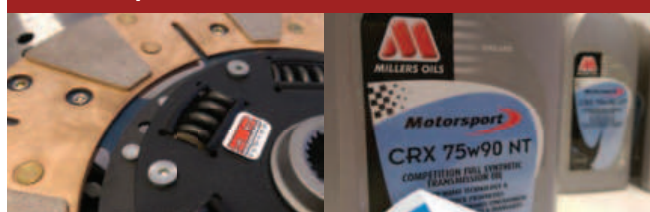
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PROJECT ROTARY

A BURNING ISSUE

PROJECT ROTARY GETS NEW COIL PACKS, LEADS AND PLUGS TO ENSURE THE HIGH REVVING RENESIS ENGINE HAS A LONG AND HAPPY LIFE!

Mazda RX-8s have a bad reputation for engines that die before their time. However, much of the problems faced by owners, including of a lack of power, poor running, bad fuel economy and starting issues – not to mention recently deceased engines in general – can be traced back to the ignition system, and in most cases the coil packs.

You see, the RX-8 runs a Wankel rotary engine. This means that, instead of pistons and a crank it has two rotors

that rotate around what's called the eccentric shaft. Each rotor is housed within an oval casting called the rotor housing. The triangular shaped rotors spin within the housings, with 'tips' at the points of the triangle, which seal off areas of the rotor housing, effectively creating areas for inlet, combustion and exhaust, due to their three-sided nature.

This process requires oil in the housings to lubricate the rotors. All's good so far... However, due to the way that

rotary engine's work, there is a large demand on the ignition system. When revved to 9000rpm, the coils and spark plugs are sparking at 150 times a second! As you can imagine this make them heat up and can cause the insulation on the coil to perish or even melt, meaning that the electrical power can short out before it reaches the spark plug by arcing to another part of the system. Eventually this can lead to the coil failing and stop supplying the plugs with

enough voltage. This obviously leads to no spark at the plug, which is bad on a conventional piston engine, but is disastrous on a rotary.

This is because when there is no spark, there is less fuel being burned. Less fuel being burned means there is more petrol on the rotor, which in turn washes the vital lubricating oil from the rotor's surface. This leads to damage to the catalytic converter and more wear in the engine, which eventually means running problems and



THE ROTARY REVS COIL PACKS ARE BASED ON THE LS2 (V8) D585 COIL DESIGN AND GIVE A MORE POTENT SPARK FOR IMPROVED COMBUSTION



expensive engine rebuild costs are ahead. Bad times!

You can solve the problem by regularly changing the coil packs before they exhibit any problems as, once any issue becomes noticeable, you've likely already done some damage. A good idea is to change them when you change the spark plugs, so around every 30,000 miles or so is a safe bet.

A good indication that the coils are shot is poor idling, a strong smell of petrol from the exhaust and decreasing performance and fuel economy. You can also visually check the coils themselves. If they have a white dot on the underside – which happens when they overheat – it is definitely time to replace them.

Mazda's own coils will do the job, but are pricey at over

£500 including fitting and only really last for around 30,000 miles. For this reason, many rotary tuners are looking to uprated items such as the highly acclaimed Rotary Revs D585 ignition coil kit.

Priced at £379.99, the in-house designed kit is built around the LS2 D585 ignition coil design, which gives a more potent spark for improved combustion.

This equates to longer lasting durability and increased reliability as well as gains in performance and fuel economy, too. In fact, according to many of the West Yorkshire firm's customers, the ignition kit even gives real-world noticeable benefits such as better throttle response, improved low to mid-range power and makes for a healthier engine and altogether smoother ride.

The kit comes with a set of Magnecor ignition leads, a mounting bracket (available in a range of colours), the wiring loom adapter and the coils themselves. Rotary Revs are so confident in their kit that they offer a lifetime warranty on it, where if a problem is identified with the kit, simply post it back to them and they will fix it for free! They'll even refund your postage!

Now if that's not a sign of quality, we don't know what is!

THANKS & CONTACTS

Rotary Revs
www.rotaryrevs.com
 01924 477202

Sparkplugs.co.uk
www.sparkplugs.co.uk
 0844 800425

Group B Motorsport
www.silverstoneautosport.co.uk
 01244 822327

SPARK PLUGS

The spark plugs on the RX-8 are also a crucial element to get right, or again you risk expensive engine damage if you skimp on the right parts or neglect service intervals.

We spoke to spark plug specialist Rob Hemsley at Sparkplugs.co.uk who recommended NGK plugs with Iridium alloy tipped centre electrodes, as they are designed specifically for RX-8 engines. The part numbers are RE8C-L 5745 (for the leading plugs) and RE9B-T 6701 (for the trailing ones). Rob explains, 'The plugs fitted to the

'Leading' chambers enjoy improved cooling and therefore are of a 'warmer' heat range. A warmer heat range means that the plug has a longer heat path, whereby heat generated by combustion is conducted away from the spark plug tip more slowly, effectively keeping the temperature at the spark plug tip in what is known as the self-cleaning range – normally between 450 and 870 degrees C. Keeping the plug in this temperature range means it will be warm enough to burn off carbon deposits but not so warm that pre ignition or other overheating issues become likely. Conversely, the trailing plugs are more likely to suffer from overheating, hence a slightly colder spark plug is used, RE9B-T. This has a shorter heat path and conducts heat away from the plug tip more efficiently. Installing the two different specification spark plugs 'back to front' will almost certainly result in fouled and/or damaged plugs at best, and catastrophic engine failure at worst!'

We took Rob's advice and went for the recommended plugs at £23.56+postage each. They're certainly not the cheapest plugs around, but the chances of issues if you try to do it on the cheap could be much harder on your wallet in the long run.

If in doubt about any ignition issues you have with your RX-8, the best tip is to seek specialist advice, as the wrong decision could be an expensive one!



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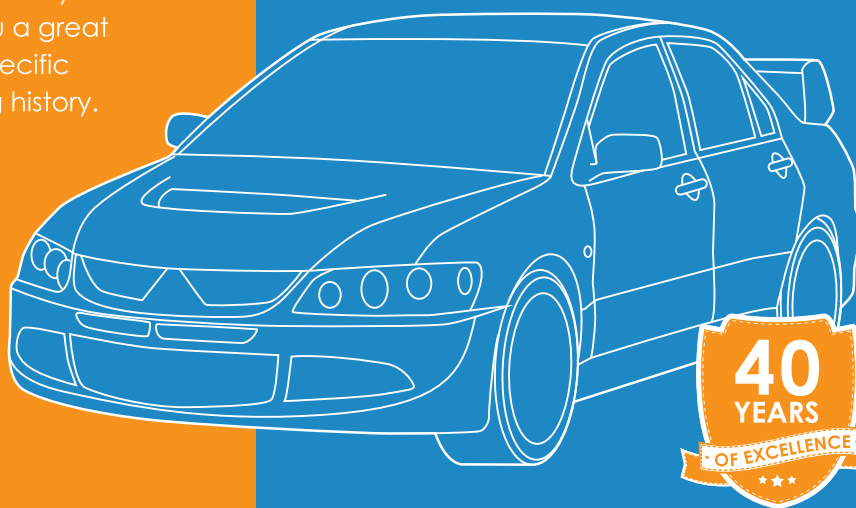
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Abbey Motorsport	48	Competition Clutch	31	Jass Performance	64	Rare Rims	64
ABP Motorsport	34,35	CoordSport	72	K-Sport (Apex Performance)	98	Ross Racing Pistons	72
Action Clutch	41	D2 (Apex Performance)	85	K&N Filters	26	Samco Sport	79
Adrian Flux	96	Dodo Juice	83	Keith Michaels	92	Santa Pod Raceway	80
BC Racing (Apex Performance)	2,3,100	EBC Brakes	6	Knight Racer	80	Scooby Clinic	25
BDC (Japspeed)	88	Elbach UK	57	LC Rotary	56	Sky Insurance	96
Carbon Goodies	73	EP Racing	73	Meguiars	17	Sumo Power	10,11
Cobra Sport	49	Eurospec 2000	89	Mark Richard Insurance	92	Tegawa Imports	4
Collins Performance	8	Glencoe	48, 72	Mayfair Performance Insurance	89	TGM Sport	64
		Hardrace (Apex Performance)	99	Polybush	79	TTS Performance	49
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- Height adjustable bottom mount
- Bearing mounted spring platforms
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STAGE THREE

At this level we're pushing the limits of the standard internals, and although fitting uprated conrods is a wise move – especially as the engine has to be removed to replace the turbochargers – many owners tend to run with the stock internals if they are in good condition.

Depending what your power and driveability goals are – and we're talking from 700 to 900bhp at this stage – there are various direct replacement turbos available, mostly Garrett and IHI units with billet compressor wheels, all very fast responding and not significantly increasing lag. To cope with the fuel demand of this engine, a twin fuel-pump setup needs to be fitted, and of course once again the ECU needs to be remapped to suit. Unlike most cars, the standard GT-R intercooler is very effective, but at this level a larger capacity version will give improved performance and reliability.

The conrods are the weakest point of the engine, and a rebuild using standard pistons, uprated rods and a fully balanced bottom end is recommended for any 650–800bhp GT-R, and for a little extra money (typically around £1000) forged pistons can also be fitted at the same time, making for an engine that should be happy even at 900bhp.

Away from the engine, the transmission will be struggling at this level, and an uprated oil cooler kit is considered pretty vital, plus an uprated clutch will be needed to handle the massive torque levels produced. If you plan to launch your GT-R hard at this level, an uprated first gear should also be fitted to prevent the teeth being stripped.

Another area worth considering is tuning the bodywork. A huge range of aero parts are available for the GT-R from many top Japanese, US and UK tuners, which can help keep the car planted at the high speeds that the car is capable of. Not only that, but you can also reduce the car's weight by replacing body panels with carbon items from the likes of Milton Keynes based Knight Racer. Finally for Stage Three is tyres. The factory tyres are very wide, giving immense grip, but of course they still can be improved. Semi-slick tyres such as the Toyo R888 are very popular on GT-Rs, and as wide as 330mm are commonplace and will happily fit under the standard arches.



TUNERS

GTC-R
www.gtc-r.com

Litchfield Imports
www.litchfieldimports.co.uk

Severn Valley Motorsport
www.severnvalleymotorsport.co.uk

Whifbitz
www.whifbitz.co.uk

Knight Racer
www.knightracer.co.uk

Abbey Motorsport
www.abbeymotorsport.co.uk

TUNING GUIDE

BEFORE YOU TUNE

While power outputs vary from around 480bhp to 590bhp, the same basic 3.8-litre quad cam V6 twin-turbo VR38DETT engine exists in all models. It has massive potential for tuning, with well over 1100bhp on conventional super unleaded and nearer 2000bhp on race fuel.

Thankfully, as the main gains in power output on later models are due to different ECU maps, it doesn't matter which model you buy if you have engine tuning in mind.

Away from the engine, the R35 has a sophisticated active four-wheel drive system giving fantastic performance and grip and a rear mounted transaxle gearbox featuring a sequential twin-clutch gearbox providing instant gearchanges and relentless acceleration.

While performance related changes are relatively minor between GT-R models, being such a sophisticated, high performance car you need to make sure you buy a good one in the first place.

Thankfully there are no real weak points, with many people using them as daily drivers without issue. However, servicing is not only vital but quite pricey, too, meaning a full and detailed service history is essential.

TUNING PROS AND CONS

Although relatively expensive to buy, compared to many performance cars, the R35's massive tunability means aftermarket parts produce great gains, and you get more bang for your buck than almost any other tuned car. Typical basic engine upgrades give the GT-R a massive 600bhp, and even on standard internals and turbochargers you can get a reliable, supercar smashing, 650bhp with a similar torque figure.

Unlike most supercars, which tend to have extremely expensive tuning components, the R35 parts are similarly priced to other Japanese cars; in fact, in many instances it's cheaper. Even when power levels get particularly high and uprated engine internals and transmission parts are needed, prices stay highly competitive. Due to the massive strength and potential of the standard components, ignoring the purchase price of the car, it's actually one of the cheapest to tune to 1000bhp and beyond.

Another real bonus is that the car's standard ECU is incredibly capable and adaptable – more so than many aftermarket setups – and can be retained beyond 1000bhp if you so desire.



THE MOST GROUND-BREAKING JAPANESE PERFORMANCE CAR TO HIT THE TUNING SCENE IN DECADES, THE NISSAN GT-R RE-Writes THE PERFORMANCE RULEBOOK

STAGE ONE

The initial engine upgrades for this car are similar to the vast majority of cars, i.e. an uprated exhaust, air filters and a remapped ECU but, unlike most cars, this can give between 570 and 600bhp and similar amounts of torque. The 'official' Stage One tune on a GT-R consists of a remapped ECU using either the COBB or ECUTEK software systems, along with changing the most restrictive part of the GT-R's exhaust system, which is replaced by a stainless steel Y-pipe. For a little more power the rest of the exhaust can also be upgraded, and a massive variety of 3.5 and 4in diameter stainless systems are available from all the usual performance exhaust manufacturers, with Milltek and Whiffbitz systems particularly popular or, for the ultimate in big bucks performance, you could splash out on an Akrapovic system.

The stock airboxes can be swapped for shielded cone filters such as K&N items or, if you're planning on staying at this level, even direct replacement panel filters will be fine.

It's worth noting that a remap on a Nissan GT-R changes a lot more than on most cars, with the gearbox functions, launch control, ignition, fuelling, and variable valve timing all adjusted as part of the remap.

At this level of tune, due to the car being such a great all-rounder from the factory, it's actually quite rare to do non-engine upgrades, so on to Stage Two...

STAGE TWO

Stage Two produces 650bhp and takes the standard turbos and the engine's stock internals to their limit.

To achieve this, larger bore intake pipes and MAF housings are needed along with larger injectors – usually 1100cc items – to replace the standard 570cc items, 3in turbo downpipes, and a remap to suit the new spec are also required.

Away from engine tuning, it's also worth fitting an aftermarket gearbox sump, as it improves cooling and lubrication, meaning the transmission is more able to cope with the stresses the big torque levels put on it.

An inexpensive but important upgrade is to add improved magnets. These are used to pick up any debris in the transmission oil. The final transmission upgrade, which is considered wise at this level, is fitting uprated circlips to the ends of the gearbox shafts. However, it's not cheap, due to it being quite labour intensive. These are a weak point as standard and have been known to snap, especially with aggressive use of the launch control, and as the price to fit upgraded versions is much cheaper than the repairs if one fails, it's a wise investment.

On the suspension, uprated ARBs are a wise move as are uprated shocks and springs. Adjustable coilovers are essential for cars that will see track use.

Finally, the brakes. The stock items are very impressive, but the R35 is heavy, and the stock discs have been known to crack under hard use. AP Racing and Dixcel do direct replacement discs that are less prone to cracking, and uprated pads are available from a number of companies. More often than not, though, people go straight to a big brake kit upgrade.

TRANSMISSION

Nissan's drivetrain is inherently noisy anyway, but can suffer bell-housing bearing failure. This could affect any car at any age or mileage and is usually identified by a distinctive noise coming from under the vehicle, caused by excessive play in a bearing. Best spotted on a ramp, repair costs can exceed £3000, so be wary of any noises under the car on the test drive.

Most initial gearbox problems were fixed under warranty but Nissan have never supplied specific repair parts. Failures are generally impossible to anticipate, but any problems with gear selection could signify impending disaster.

Also, gearbox shaft circlips are one of the weak areas of the GT-R's transmission, so if the car has seen a lot of track action, or many hard launches on the drag strip, the circlips could well be on the way out if they haven't been replaced with uprated items.

CLUBS AND FORUMS

www.gtr.co.uk
www.nissan.co.uk
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TECH SPEC

(ORIGINAL 2009 UK MODEL)

ENGINE	3799CC V6 TWIN TURBO
MAX POWER	478BHP AT 6400RPM
MAX TORQUE	434LB FT AT 3200RPM
TRANSMISSION	6-SPEED DUAL CLUTCH
MAX SPEED	195MPH
0-62MPH	3.5 SECONDS

PRICE: FROM £35K

ENGINE

Your GT-R must have a full service history from either a Nissan High Performance Centre or, if it's a JDM car or more than three years old, an experienced specialist like Litchfield Imports or Severn Valley Motorsport. 2009 and 2010 GT-Rs must be serviced every six months or 6000 miles (after an initial 1500-mile visit) whilst the 2011–2013 models only require servicing every 9000 miles or 12 months. The priciest services are at 18, 24, 36, 54 and 60k miles. Ask if it's been tuned, as many already have, and insurance premiums are higher on JDM models.

The VR38 engine is surprisingly reliable even at extremely high power outputs, so as long as it hasn't been abused with poor modifications and has been serviced regularly, it should be pretty bulletproof. Finally, if it has been tuned, check that all modifications to the breathing such as air filters and exhaust have been accompanied with a suitable remap of the car's ECU.



NISSAN R35 GT-R

BUYING GUIDE

YOU CAN NOW PICK UP THE ULTIMATE JAPANESE PERFORMANCE CAR FOR AS LITTLE AS £35,000. BUT WHAT SHOULD R35 BUYERS BE LOOKING OUT FOR?

The R35 GT-R delivers affordable 911 Turbo performance in a practical package. And you can now buy a good second-hand example for as little as £35,000. Compared to its R34 Skyline predecessor the R35 GT-R has a lot more power and torque, an excellent six-speed dual clutch transmission with paddle gearshifts and a high-tech four-wheel drive system, yet it's every bit as tuneable.

Launched in Japan in December 2007, the first official UK imports didn't arrive until spring 2009 costing £56,800. Powered by a 478bhp, 3799cc, V6 VR38DETT engine, with two parallel IHI turbochargers, 62mph is reached in a mere 3.5 seconds and the R35 topped out at very nearly 200mph.

In 2010 power rose to 485bhp, while in 2011 the output for the facelifted model reached 523bhp. The standard car was £69,950. In 2012 power rose once again to 542bhp. Nissan also released a £10,000 Track Pack taking the 2012 list price from £74,450 to £84,450. The 2013 model had further tweaks to improve response even though power remained the same; the price of the base car also rose to £76,610. 2014 was much of the same but with more refinement and road manners thrown into the bargain and a £78,020 price tag. A hardcore Nismo version was also launched with power up to 591bhp which dropped the GT-R's 0-60 sprint time to just 2.5 seconds, but costs a staggering £125,000. The Nismo version is still available today, to those with deep pockets, and the 2015 base GT-R is now £78,030. Note that there is no such thing as a bargain R35, however. Prospective buyers must be very cautious – the wrong car could easily cost you £5000 or more to rectify. If possible stick to GT-Rs in standard tune and research any future modifications carefully.

WHEELS AND TYRES

All models pack 20in wheels that run on special Dunlop run-flat tyres, which cost around £2300 a set. So many owners choose to run Bridgestone non-run-flat RE070R tyres instead – which cost only £1300. Aggressive standard geometry settings mean the inner edges of the tyres wear more quickly and in extreme cases this can go right through to the canvas. Aftermarket wheels are common, but check that the tyres are a good brand and all four corners match.

BRAKES

The standard GT-R runs on bespoke floating Brembo cross-drilled discs, which need to be warmed up and cooled down properly. Any cracking of the discs due to thermal shock will mean they need to be replaced. Most GT-Rs over two-years-old have had a brake disc change and – due to the high cost of replacement standard discs – many owners have chosen aftermarket alternatives from manufacturers like AP Racing or Alcon.

SUSPENSION

Some cars have suffered steering-lock failure, usually leaving the vehicle unable to start and requiring complete steering replacement at a cost of £1600-plus. A campaign has been announced by Nissan to replace all units that are thought likely to suffer failure, but some cars may slip through this net. A call to a Nissan High Performance Centre with the chassis number can confirm if this work has been carried out.

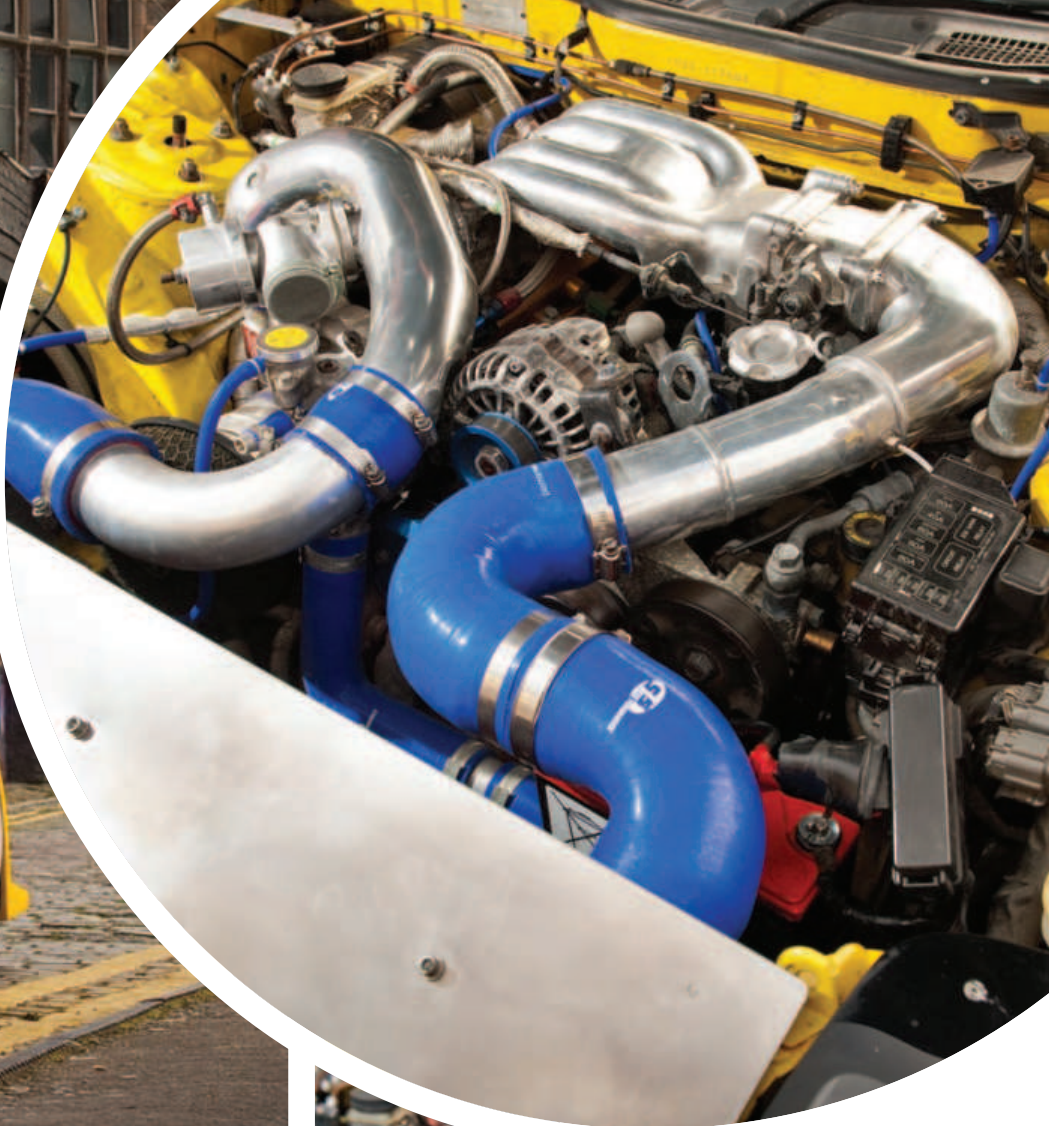
BODYWORK AND INTERIOR

GT-Rs stone-chip badly especially if tracked. A few cars showing clean HPI reports have been accident damaged and poorly repaired. Speak to the previous owner face-to-face if possible.

Repairs may not be evident as the GT-R has lots of underbody covers and diffusers. Get any potential buy inspected by a Nissan High Performance Centre and beware any hints of rust at the bottom of the doors or around the mirror fittings.

The MFD/Radio system can develop faults, whilst some areas of the backlighting on the speedo unit can also fail. If a speedo is replaced then the mileage reading starts again at zero – there is a page in the service record to log this.

WARNER ST.
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STAGE THREE

This stage looks at a rebuilt and mildly ported engine, commonly known as a street port. There is very little to be lost by street porting at the same time as an engine rebuild, but great gains are to be had in performance levels. The turbos from Stage Two can be used if you wish, and can be capable of well over 500bhp on a street ported engine, especially with increased levels of boost. To increase reliability, adding water injection is a very wise move as it does a great job of resisting detonation.

Beyond the engine, the fantastic standard brakes may finally be beyond their limits, especially for track use, but big brake conversions are widely available. Also, uprated anti-roll bars and bushes are great at sharpening up the handling, especially when used in conjunction with various transmission and chassis braces.

STAGE FOUR

This is where things get a little crazy, and while drivability will be nowhere near as good as standard, when it comes to performance the car will be firmly in supercar-beating territory on road and track.

Engine-wise the porting becomes extreme, with either Bridge or Peripheral porting required, which allows the engine to breath huge amounts of air, but with a side effect of having a wild sounding idle and very loud exhaust note. At this level the car really needs a four inch system to make the most of the other engine mods.

To complement the porting, a massive turbo is also needed. The Trust T88, HKS T51R and BorgWarner S400 are all popular turbos for this level, and can all give well over 500bhp even at very low boost levels, and frankly incredibly numbers once the boost is cranked up.

Huge primary and secondary injectors are also needed, along with an uprated ignition system such as the HKS Twin Power or Jacobs FC1000 setup. Although the PowerFC engine management is still capable at this level, many change to a full standalone system.

To help get the power down you will need some incredible grip, luckily 315-wide semi-slicks are able to be tucked under mildly modified rear arches; even wider should you choose to go for a wide bodykit. Another big help when it comes to traction is a two-way plated limited-slip differential.



TUNERS

LC Rotary

www.lcrotaary.co.uk

WGT Auto Developments

www.wgtautodevelopments.co.uk

RX Motors

www.rxmotors.co.uk

Hayward Rotary

www.mazdarotary.co.uk

Hurley Rotary

www.hurleyrotary.com

Group B Motorsport

www.silverstoneautosport.co.uk

Mazda Rotary Parts

www.mazdarotaryparts.com

Mazdatrix

www.mazdatrix.com

Racing Beat

www.racingbeat.com

MAV Tuning

www.mavtuning.com

Atomic Rex

www.atomicrex.co.uk

Petit Racing

petittracing.co.uk

Apex Rotary

www.apexrotary.com

TUNING GUIDE

BEFORE YOU TUNE

The RX-7 has a bad reputation for unreliability, which in all honesty is undeserved as, while they are no doubt specialised – you might even call them temperamental – unreliability issues are mostly down to incorrect maintenance and tuning; although the rotary engines are far less fool-proof than your average piston engine. Because of this, buying one is somewhat of a minefield and we would advise you buy on condition rather than spec, and have plenty of cash in reserve should the worst happen.

Overall, though, cars with proven recent compression test readings, recent rebuilds and general signs of love by the current owner are more attractive propositions. While a car with a giant single turbo and a huge power figure can sound like a good buy, a car with good supporting modifications – such as improved oil and water cooling setups – indicate something that will probably be a better bet in the long term.

TUNING PROS AND CONS

With brakes and transmission that are capable of coping with far more power than the standard car's output, a brilliant suspension design, wheel arches that can accommodate supercar-sized tyres, and an immensely tuneable engine that can handle sustained high rpm for long periods – much better than a piston engine – the FD RX-7 makes a seriously good base for tuning.

The bad points stem mainly from the engine and its inability to survive any form of detonation. In an ideal world this would never be a problem, as a correctly tuned car should never detonate at all, but in the real world of lower budgets, huge variations in use and inconsistent fuel qualities, mild detonation is often inevitable at some point on a highly tuned car – especially when not mapped, built and maintained by a true expert, which can lead to big four figure rebuild costs.



AMAZING, QUIRKY AND TEMPERAMENTAL IN ALMOST EQUAL MEASURES, A WELL-TUNED MAZDA RX-7 IS WITHOUT DOUBT ONE OF THE FASTEST CARS ON ROAD OR TRACK

STAGE ONE

The RX-7's standard ECU will accept minor mods like an induction kit and a free-flowing exhaust, as it will cut fuel to protect the engine if it sees too much boost due to mods. However, due to the aforementioned susceptibility to detonation, it can be risky just bolting on even normal performance upgrades such as exhaust systems to an RX-7 (in conjunction with bigger intercoolers) without changes to the ECU map, so while Stage One isn't as simple as it is for many cars, it's a big hike in performance. Around 15psi (1bar) is the safe limit of boost for the standard turbos, but up to 350bhp has been achieved on the stock units when the car is also fitted with a full turbo-back exhaust system, an induction kit and a large front-mount intercooler. Thankfully the standard fuel pump and injectors can both cope at this level, so while you have to spend money in some areas, you will save in others. One area where it's not worth skimping on is the ECU, which we would replace with an APEX'i Power FC or HKS F-Con unit.

Away from the engine, the first stage of handling mods would be a set of height adjustable coilovers from the likes of HSD, BC Racing, Ohlins and many more. These enable you to lower and stiffen the suspension, as well as often giving camber adjustment too, which will drastically improve your car's looks and handling.

STAGE TWO

For the next stage of engine upgrades we focus on sticking with the standard internals and good drivability, while also going for more power than the standard turbochargers can provide. You have two options here: either stick with the sequential setup with a set of Stage 3 hybridised units, or a big single turbo conversion.

Sticking with sequential gives the car incredible low rpm power with positive boost from almost idle, but going for a single turbo conversion means you are drastically simplifying the turbo setup, not to mention removing a ton of complex pipework and solenoids that control the sequential turbo setup. Providing you stick with a small single turbo such as an APEX'i RX6, Garrett GT35 or the slightly larger Trust T78, you can still have full boost by around 3000rpm – single turbos aren't necessarily the laggy beasts some people think. Bigger secondary (1600cc) injectors, cooler spark plugs, an uprated fuel pump and another remap for the Power FC fitted in Stage One are also needed, but it's not unknown to get around 450bhp at 15psi boost with any of these setups, along with great drivability.

Beyond the engine, the standard wheels and tyres – while surprisingly light and wide – are a bit of a let-down in the looks department compared to the rest of the car. For the best overall handling it's generally accepted that a set of lightweight 9x17in wheels with quality 255-wide tyres front and rear give the best overall levels of handling and grip without worrying about arch work.

Finally, extra cooling upgrades are a wise move, namely an uprated radiator from the likes of Koyo or Mishimoto and a bigger oil cooler.

TRANSMISSION

The popular five-speed manual gearbox tends to be very robust – but the gear ratios were changed a number of times during the FD's lifetime. The transmission should shift precisely and smoothly but some owners have reported 5th gear synchro problems, however, the

use of Redline transmission oil should prevent the problem from developing in the first place. If not, a spring kit is available that will help alleviate the problem. The 5th gear synchro may also be cracked if there is a grind every time 5th is selected. Clutches can start to slip due to the power and torque from the turbocharged 13B, especially with an increase in boost, meaning uprated ones are a common replacement. Check for any slipping under heavy load and adjust the price accordingly.

CLUBS AND FORUMS

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www.fduk.org
www.rx7club.com
www.rx7forums.com

TECH SPEC

MODEL
ENGINE
MAX POWER
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TRANSMISSION
MAX SPEED
0-60MPH

MAZDA RX-7 (FD)
1308CC ROTARY
237BHP AT 6500RPM
218LB FT AT 5000RPM
5-SPEED MANUAL
156MPH
5.3 SECONDS

PRICE: FROM £4K

ENGINE

The RX-7's 13B rotary engine is a bit of a mystery to many, which can lead to improper maintenance resulting in expensive repair bills. The best advice before parting with your cash is to get an engine compression check carried out – a decent engine should start almost immediately, whether hot or cold. A gurgling sound when a hot engine is turned off could be a sign of water seal failure, which is the equivalent of a blown head gasket on a piston engine. A rebuilt engine with impeccable provenance is a real bonus. You will find RX-7s fitted with a number of different single and twin turbo configurations. Look for oil leaks from the front and rear crankshaft seals, whilst worn rotor tips and failed water pumps can cause expensive damage. Fitting a boost gauge is essential – pre-1997 twin turbos especially need careful monitoring. Changing the oil and filter as often as possible is recommended – preferably every 3000 to 5000 miles. And it's a good idea to replace the plastic air separator tank with an alloy one, as they can split.



MAZDA RX-7 FD3S

MAZDA'S HUGE-SELLING RX-7 WAS A LEGEND IN ITS OWN LIFETIME. BUT WITH PRICES FOR SOME FD VERSIONS NOW UNDER £4000, YOU NO LONGER NEED TO BE LOADED TO BUY ONE

Curvaceous styling that still looks just as sumptuous today, legendary handling and a powerful and highly tunable twin turbocharged 13B rotary engine imbued Mazda's rear-drive RX-7 with all the qualities needed to make it a sure-fire hit. Three generations were produced, with the last FD model making the finest used buy.

Launched in late 1991 the third-generation FD boasted a high standard spec, with most versions sporting a limited-slip diff, alloys, ABS, power steering, a decent stereo, part-leather trim, a rear wash-wipe, halogen headlights and air-conditioning. There were close to 20 different versions produced between 1992 and 2002 with two-seaters and 2+2 models, as well as five-speed manuals and four-speed automatics. Official UK imports ceased in 1996 but JDM models are every bit as good to own. Mazda sold around 60,000 FD models in total.

WHEELS AND TYRES

The OE alloy wheels are light and wide, but can wear badly over time with many in need of refurbishment. Many owners will have ditched the factory rims long ago, however, and fitted larger and wider aftermarket alternatives. Check for kerbing and a matching set of good quality tyres with plenty of tread – especially at the rear, as the RX-7 is a drifter's dream.

BRAKES

Standard braking is fine for fast road use, but for regular track work you should upgrade the pads and consider changing the discs, too. Check for sticking calipers and cracked or warped discs. If any juddering is present on the test drive, the discs will need replacing.

SUSPENSION

The RX-7 has excellent suspension straight out of the box but many will have coilovers fitted. It's common to hear clonking noises from the suspension which, while not a problem for the car's performance, can be expensive to remedy. Suspension bushes make a huge difference to the RX-7 – a complete kit will set you back around £500 plus fitting, but will transform the ride and handling.

BODYWORK AND INTERIOR

Rust isn't a big issue on the FD RX-7, but still examine the underside of the door seals and the front chassis legs for signs of the tin worm. Make sure that the car has an under-tray fitted and check the radiator for hair-line cracks. Over-spray on trim or uneven panel gaps suggests repaired accident damage. Early cars had problems with the factory paint which was prone to chipping and fading, but many will have had aftermarket paint jobs which, if done well, should remedy any issues. The interiors are good places to be but the plastics are cheap and can peel and the passenger door handle is prone to breaking.





STAGE THREE

With the previous stage concentrating on naturally aspirated performance, this stage is purely about turbocharging on the standard engine internals.

Bigger injectors and an uprated fuel pump will be required regardless of your turbo setup, with 750cc injectors and a Walbro pump being the usual suspects, all controlled via the Hondata ECU mentioned in Stage 2.

For the turbo kit itself it totally depends on what you want from the car, with either immediate response and a boost in power right from low rpm, or a big power high rpm monster. Being such a high rpm orientated machine even as standard, a huge turbo won't affect the drivability of the DC2 as much as it can many rival cars, and upwards of 500bhp has been achieved on standard internals running a big GT35 turbo or similar, but as long as you're not chasing big numbers some of the smaller turbo kits really are a revelation in performance. The Race-Tech 'basic' turbo conversion kit features a trick twin-scroll tubular manifold setup and twin-scroll Mitsubishi Evo turbo, giving fantastic spoolup, much increased midrange performance, 400bhp+ potential, and at a great price, too.

Beyond around 300bhp a larger exhaust than the 2.5in one fitted in Stage One would ideally need to be fitted, and would be vital if going for over 350bhp, and while most people go for a full custom system the Skunk2 Megapower RR system is actually a ready-made full 3in system for the DC2, saving you a little work. As you may have guessed, at this level the standard clutch just won't cope, so an uprated item from Exedy, Competition Clutch or ACT is usually recommended, along with a matching lightweight flywheel.

At this level, although the suspension setup is good from the factory, it's very common for the DC2 bushes to be far from their best, and replacing them with a set of uprated ones from the likes of Hardrace or Powerflex has been known to transform the handling, traction and feel.

Finally for this level, while the factory LSD does a great job of getting the power down, the standard tyres are the weak point, and a set of 225-wide road-legal track tyres will really help get all the newfound turbocharged torque to the Tarmac.



TUNERS

ABP Motorsport
www.abpmotorsport.co.uk

CPL Racing
www.cpl racing.com

Funky Power
www.funkypower.co.uk

Hond-R
www.hond-r.co.uk

H-Tune
www.h-tune.co.uk

Race-Tech
www.race-tech.net

TDi North Power Tuning
www.tdi-north.com

TMG Sport
www.tgmsport.co.uk

Torque Developments International
www.tdi-plc.com

TTS-Performance
www.tts-performance.co.uk

VTEC Direct
www.vtecdirect.com

TUNING GUIDE

BEFORE YOU TUNE

Although all models of the DC2 Type R are great, which variant you choose can make a small difference to the tuning but also changes the aesthetics. The JDM versions have around 10bhp more from the factory, but don't feel drastically different on the road, and it's mostly a better exhaust system and more aggressive tune that gives the increases, so not a huge issue on a car you will be tuning. Visually the main difference is quite big between JDM and UK cars, and that's because of the headlamps. JDM DC2s use single brick-style headlamps, while UK versions have four round lights. Which style you prefer is up to you.

While all UK versions are the later '98 spec there are early and late JDM models, and while the differences aren't huge, the improvements to the brakes, gearing and suspension make later versions generally more desirable, especially as a base for further tuning.

TUNING PROS AND CONS

The DC2 Type R's only true weak points are crash damage and rust. The highly tuned nature of the engine also means that, due to serious performance not coming until around 6000rpm, you need to wring its neck, and being so highly tuned from the factory means forced induction is the only real route to drastic power gains. The final weak point is that oil temps can get high under sustained track use. The strong points of the DC2 are that it's a fantastic all-rounder, meaning there's no need to upgrade certain things until a very high level of tune. The B18C engine is powerful, high revving and hugely strong, with the potential for large power increases. Lastly, the DC2 is huge in the Honda tuning scene, with a wide range of interchangeable parts between various models.



THE FIRST, AND ARGUABLY THE BEST, TYPE R TO BE OFFICIALLY RELEASED IN THE UK, THE DC2 INTEGRA IS GREAT FROM THE FACTORY, BUT WE SHOW YOU HOW TO MAKE IT EVEN BETTER...

STAGE ONE

First up are some breathing mods to help the engine rev. A full exhaust system including a tubular exhaust manifold is a must. The main difference you will find between various exhaust systems is the volume, with some being very loud which, while some people like, can be too much for daily use and for track use – do your research if you plan to go on track.

On the inlet side there are 'short ram' kits that fit a performance cone filter in place of the standard airbox or the well known 'whale penis' intakes which position the air filter in the stock position, but feature a large capacity intake pipe, which not only looks good but is said to improve flow. There are also 'long ram' intakes that position the filter low behind the front bumper, increasing the amount of cold air the engine can suck in.

The final thing to mention for the engine is to fit an oil cooler. We previously mentioned that oil temps can get very high with sustained track use, and this simple upgrade will keep reliability on track at a maximum.

Beyond the engine, the typical first stage on the suspension front is a set of coilovers to lower the ride height and stiffen the suspension. There's a massive selection available with varying amounts of adjustability and differing spring rates, too, so exactly which setup you choose will depend on your planned use and personal preference.

STAGE TWO

While ITR engines are already highly tuned, over 220bhp is possible on a standard bottom-end without forced induction, and that's where Stage Two will be taking us.

The two main components for this level are an ECU upgrade and camshafts, both of which combine with the Stage One upgrades to give serious high rpm power. With regards to the ECU, the common process is to fit an earlier ODB1 ECU that allows the fitment of a Hondata S300. This basically turns the stock ECU setup into an incredibly powerful and fully-mappable engine management system, but without the expense and need for a custom wiring loom.

On to the cams, while the stock cams are certainly wild compared to most cars, you can go further on the Integra lump and Skunk2 Pro Stage 2 or 3 cams, Buddyclub Stage 4, or even JUN stage 3 cams have been fitted, which, combined with the Stage One mods, a set of uprated valve springs and retainers, and a custom ECU remap, make for a very fast car indeed.

You can go further, as an ultra-thin head gasket can increase the compression ratio a little, and is normally fitted with a set of ARP head bolts. Go above 220bhp, however, and the standard injectors will need to be replaced with larger items, too.

Away from the engine, an uprated alloy radiator would be a good plan for a track car, and uprated brakes to match the car's newfound power would be wise, too, with Stoptech and K-Sport doing big brake kits, and for smaller budgets, countless variations of direct replacement disc and pad combos are available and are still very effective.

TRANSMISSION

As you'd expect from a car that has to handle the kind of abuse that only a 8000rpm screaming VTEC can deliver, the transmissions are tough, but they don't last for ever. Third and fourth-gear synchromesh is a regular failure point, and any problems engaging fifth gear or reverse could signal big repair costs. Clutches also wear, as do the bearings: listen out for any rattles or grinding when operating the clutch as this is an indicator that the bearings are on their way out and will need replacing – if you can get them replaced at the same time as the clutch unit itself it will save you a lot of money in labour, over doing the job twice. UK cars feature a limited slip diff that greatly adds traction both off the line and when cornering but, if you get a problem, they can be expensive to replace.

CLUBS AND FORUMS

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ENGINE

As with pretty much all Honda engines, the B18C in Honda's Integra is a strong and reliable unit able to take both abuse and mileage relatively in its stride. However, when buying look for a complete service record that shows routine servicing every 9000 miles or 12 months. However, caring owners are likely to have changed their oil every 3-6k miles. The cambelt should be changed every 54k miles or four years – whichever is sooner.

Any tappety noise on startup should go after a few minutes, whilst batteries, distributors and aircon belt tensioners will all need replacing eventually. The coolant must be changed every two or three years and if the car doesn't pull urgently above 6500 revs (once warmed up) the VTEC system could be shot. Many owners will have fitted induction kits and aftermarket exhausts that can increase power and torque, but are also likely to come with a large increase in volume, which can become tiresome on long journeys.



HONDA INTEGRA TYPE R (DC2)

BUYING GUIDE

FRANTIC BUT FANTASTIC, THE FIRST TYPE R TO HIT UK SHORES IS A LEGEND. BUT WHAT SHOULD POTENTIAL BUYERS BE LOOKING OUT FOR?

Effectively a road-going Touring car, Honda's DC2 Integra Type R Coupe delivers a thrilling drive. Balance is neutral despite the front-drive setup, whilst race-bred goodies like Recaro bucket seats, a limited-slip differential and a high-revving 187bhp four-cylinder VTEC engine make for a heady package. Admittedly the engine is a bit low on torque and the cabin isn't the quietest place to be, but with instant feedback the five-speed Type R Integra handles better than any other front-drive coupe.

Based on the revised 1998-on JDM model it had slightly lower gear ratios than the pre-1998 model, modified spring and damper rates, larger brake discs, larger front and rear anti-roll bars, a wider track and a stainless steel manifold. Japanese Type Rs received larger 16in alloys plus eagle-eyed HID headlamps instead of the four round ones on UK cars.

Despite the Integra's edgy nature, mechanical reliability is right up there with the best – as long as you stick to cherished examples in good condition. Always buy an Integra on condition, not mileage.

WHEELS AND TYRES

Many owners prefer to stick to 15in or 16in alloys to keep the unsprung weight down. Performance tyres are common, but the fronts won't last long (as little as 5000 miles on the road.) Eye-ball the alloys for any signs of corrosion – OE 15-inchers seem to need refurbishing every few years. Note that tyre pressure can have a major effect on the handling.

BRAKES

Sticking rear brake calipers are common and a hard-driven Integra will get through front pads and discs fairly frequently, despite the car's relatively low kerb-weight. Most cars have aftermarket pads and quite a few cars have had disc and caliper upgrades fitted too. ABS was only an option on pre-1998 JDM cars, which also had smaller OE front discs.

SUSPENSION

OE shock absorbers and almost all suspension bushes eventually wear out, which is probably why most DC2s in the UK now seem to have aftermarket items fitted. Anti-roll bars, too, can need replacing and if adjustable coilovers are fitted don't forget to ask how they should be adjusted.

BODYWORK AND INTERIOR

Thin paint means stone chips are unavoidable – especially on the leading edge of the bonnet. Left untreated rust can set in quickly. Also scour the underbody, door sills, boot and wheel arches for any signs of rust.

Accident damage is pretty common – look for uneven panel gaps or faded paintwork. Original

UK cars have their foglights on the right of the rear bumper.

Some wear on the interior is inevitable and the hard plastics can creak on older examples, whilst the driver's seat bolsters wear thin and can crumble. Check all the electrics, too. If there's a four-point harness, it's likely to have been tracked regularly.



WELCOME



No one likes to think about their own mortality for too long, as it can be a pretty morbid experience. After all, once your time is up, it's up, and there's very little you can do about it. However, to ensure we bid farewell to this mortal coil knowing that we have experienced the best that life has to offer, it's only right that we've had the chance to both own and tune some seriously special Japanese machinery. Which is why we have dedicated the August, September and October issues to giving you the best opportunity to do just that. This is the second of the free, three-part guides to buying and tuning nine of the best Japanese performance cars to buy and tune before you die. The first one was free with last month's issue.

Broken down into three essential instalments, each edition concentrates on the buying information and top tuning tips to allow you to both buy and tune three of our top nine. And, so as not to leave anyone out, we've selected an option for front-wheel drive, rear-wheel drive and four-wheel drive in each issue, so whatever layout of driven wheels floats your boat, each month there'll be something to get your juices flowing and stop your cash burning a hole in your pocket.

This month's issue is focused on the Honda Integra DC2 starting on page 4, the Mazda RX-7 FD3S starting on page 8 and the Nissan R35 GT-R starting on page 12. So don't wait until it's too late, get one of our top nine on your driveway and start ticking them off your automotive bucket list. Take our word for it – whichever option you try, it will be more than worth it! – Dan Sherwood, Editor

WHAT'S IN?



P4



P8

NEXT MONTH...

Next month sees part three of our series on the top nine Japanese cars to buy and tune and features the Nissan 200SX S14, Toyota Celica Gen 7 and the Subaru Impreza STi.



P12







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THE TOPNINE

SECOND OF A THREE PART SERIES

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HONDA INTEGRA DC2
MAZDA RX-7 FD3S
NISSAN R35 GT-R

THE BEST JAPANESE PERFORMANCE CARS TO OWN AND TUNE BEFORE YOU DIE!

Japanese Performance reveals how to bag a beauty and the top tuning tips that work

